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Addresses.

THE TRANSPORTATION OF THE WOUNDED.*

BY EDMUND L. GROS, M.D., PARIS, FRANCE.

Mr. President, colleagues, ladies and gentlemen:

I am to discuss today the question of transportation of the wounded, which is one of the problems of modern warfare—perhaps the greatest. Compared to the progress which has been made in perfecting the means of destruction there is no question that the methods of evacuating the wounded are certainly very crude and open to great improvement.

The advent of the automobile should have been the means of simplifying and ameliorating these methods and of making military sanitation equal to emergencies of modern war.

As we shall see, this has not been the case, because the railway is still the main medium of transport, and motor ambulances are not utilized to the extent that they should be.

One of the main reasons why the evacuation of the wounded is often so badly carried out is that the lines utilized for this transportation are often the same as those that are used for the conveyance of troops, food and ammunition. This has given rise to that implacable formula so often quoted, *Ammunition first, food second, wounded third.* This, to my mind, is a cruel, senseless and useless maxim. How many human lives have been sacrificed to it!

The task of evacuating the wounded at its best is undoubtedly a complicated one for many reasons: There is no work which undergoes such unexpected and startling variations. On certain days, the number of wounded to be evacuated (as was the case some weeks ago) did not exceed 300 all along the French front, while again there may be 10,000 or 20,000, or even more, in a day, as in the battle of the Marne. What still further hampers the *Service de Santé* is that the greater the number of wounded at a given point the more difficult the evacuation becomes, because of the congestion of the various lines of transportation.

When one fully appreciates the tremendous difficulties which confront the military surgeon in his work at the front, one can but admire his courage, his devotion and his resource. Our experience in the transportation of the wounded teaches us that there is a vast difference between theory and practice. When one opens a book on the subject—"Troussaint's Service de Santé en campagne"—or any other treatise on the subject, one finds a great many precise rules and regulations dealing with the transportation and evacuation of the wounded. The handling of the wounded becomes apparently a question of military tactics. It would seem to be a very simple matter, but how different are the actual facts! There is no other service which is subject to so many daily and hourly variations and in which the conditions are so constantly changing.

We all know that there are three different

* Read before the Medical Society of the American Ambulance Hospital of Paris.

phases in the movements of an army or of a battalion: It may *advance, remain stationary, or retreat.* The various military operations are, of course, capable of all sorts of variations, any one of which may in a moment create for the Sanitary Service situations of the greatest difficulty.

If the army advances, the situation is very simple, because the wounded become each minute further removed from the enemy, and it is comparatively easy to handle them. When the army remains stationary, as in the present form of trench warfare, the situation is also very simple, because the Sanitary Service has ample time to organize its work.

But when the army is in retreat the difficulties begin. The enemy advances with more or less rapidity, and the *Postes de Secours* and the field hospitals must be evacuated without delay. Frequently the patients can be removed to the rear, but too often the evacuation cannot be effected rapidly enough, and the wounded must be left where they are in charge of one of the surgeons who remains behind. Many of them fall into the hands of the enemy.

These three phases have already been exemplified in this war:—

1. The retreat from the north after the battle of Charleroi.
2. The advance during the battle of the Marne.
3. The stationary situation created by the present trench warfare which has lasted for so many months.

The allies were unfortunate in having the most complicated situation to cope with at a time when the sanitary organizations were least able to meet it. I cannot report personally how the wounded were transported at that time. There is no doubt that a large number fell into the hands of the Germans.

Our actual experience began with the German retreat in the battle of the Marne—the advance of the Allies. At that time the problem which confronted the Sanitary Service was twofold: The hospitals of the North had to be evacuated, and in addition, some 112,000 men who fell during this memorable battle had to be transported to the various hospitals. This, too, came at a time when the *Service de Santé* was still badly prepared for its work. Ours were the only ambulances which were ready at that time. Our souls were harrowed by tales and sights never to be forgotten—hundreds abandoned without food and drink for days in half ruined churches or schools, or again lying on straw in shunted cars which could not be sent forward on account of the railway being used by ammunition and troop trains. The mere mention of the battle of the Marne evokes souvenirs of the many expeditions we made to Meaux, Lizy-sur-Ourcq, Crépy-en-Valois, etc., and it is hard to refrain from recalling here some of our experiences.

It was during this period that we gained much of our experience in transporting the wounded from the advanced lines. We were kept very busy, our motor ambulances being the only ones which were in readiness to respond day and night to the calls of the sanitary authorities.

Before describing the various means of transportation I wish to say a few words about the obligations which we owe to the wounded. When we see the wounded arriving at our door we are too apt to look upon them as subjects to whom we intend to give the best of care, but for whom we do not have the keen, deep human sympathy which we should feel, did we but realize the physical and mental suffering through which they have just passed. It is well for us to remember the agonizing hours spent on the battlefield, and the complicated and nerve-racking journey which has finally landed them at our doors.

Dr. du Bouchet spoke very feelingly at our last meeting of our duty to the men who have fought bravely for their country. Our duty should begin not only with the treatment given them to alleviate their physical suffering, but the very minute we meet them. These men have left their homes, their occupations, their wives and their children to lay down their lives if need be for their country. They have fulfilled their duty to society, and our obligation to them, the humblest of them, is to treat them with the greatest gentleness and patience.

In order to evoke in your minds a complete picture of that journey (which so often, alas! ends in a tragedy) which the wounded soldier takes from the firing line to our hospital, let us start on the battlefield itself. For a description of what generally happens on the firing line I am indebted to our military colleague, Dr. Perrin, who was wounded near Arras, in the accomplishment of his duty, and who, fortunately, has almost regained his health in the American Ambulance.

I think there is great interest in following the wounded soldier from the battlefield until he reaches the point where our base hospital comes in contact with him. If he is wounded in the open, he falls on the firing line, and tries to drag himself to some place of safety. Sometimes the fire of the enemy is so severe that he cannot move a step. Sometimes, he seeks refuge behind a haystack or in some hollow or behind some knoll. Generally a number of wounded will collect in the same place. This is called by the picturesque name of *nid de blessés* or "nest of wounded." If the artillery or rifle fire is particularly severe, they will remain here till darkness comes on. In the meantime they apply a dressing to their wounds or have them dressed by some comrade. Under the cover of darkness, those who can do so, walk with or without help, to the *Poste de Secours* or First Dressing Station which, in open warfare, is situated from 500 to 1000 metres from the firing line, generally in some protected spot. As we shall see later on,

in trench fighting the *nid de blessés* becomes the *Poste de Pansement* in a third line trench.

Of course there are various ways in which the wounded can get to the *Poste de Secours*. Stretcher-bearers are sent out to collect the severely wounded. Sometimes mules are used, with an arrangement of side-seats called a *cacolet*, or a two-wheeled push cart, similar to the Japanese *pousse-pousse*. This vehicle is of the greatest service when the roads are good, and Dr. Perrin recounts that he succeeded one night in transporting 18 badly wounded soldiers from a spot 50 metres from the German lines to a point several kilometres back, in a very short space of time.

The wounded are not kept very long at the *Poste de Secours*. Their wounds are dressed, and in the case of fractures, improvised splints are applied, and the patients are evacuated as speedily as possible. This is accomplished by a system of ambulances, which operate from another service called the *Service de l'arrière*, but the number of motor ambulances is wholly inadequate, and this is a serious flaw. I am told that frequently the ambulances do not make connections, and that the surgeon of the battalion in charge of the *Poste de Secours* must get his wounded out as best he can, requisitioning for this purpose the peasants' carts and wagons. The dressing station does not part with its stretchers, so the wounded are placed on straw spread on the bottom of these carts without springs, and thus they are conveyed during five or six hours before they reach the sanitary train or temporary field hospital. What torture many of them must endure, especially those with multiple fractures!

This description applies to open warfare such as existed in the early stages of this war. The sanitary service, as well as the combatants, has been obliged to adapt itself to these new and strange conditions, and I am quoting from Ferraton, who describes the practical workings of the service under his direction.

The hardships of the soldier in this trench fighting have been shared by the military surgeon and his associates, and one must express the highest admiration for their coolness and courage under most trying conditions. Here, there is no Geneva convention. The medical corps is exposed to the enemy's fire in exactly the same degree as the soldiers. The military surgeon, as well as the stretcher-bearer, remains behind the combatants, in third line trenches, in trench-rooms, covered with transverse logs and sod. As soon as a soldier is wounded, the stretcher-bearers go to get him by means of the communicating *couloir* or trench. The ordinary stretcher is too long to be used in the tortuous and abrupt angles of these trenches. It has been found more convenient to use a sort of a palaquin made by suspending a canvas sling from a wooden pole. An ordinary chair is often the most convenient means for transporting the wounded from the first trench to the so-called *Poste de Pansement* (dressing station). This *Poste de Pansement* is often situated in a second line trench.

In this subterranean room, dimly lighted, the dressings are applied, splints adjusted, hemorrhages arrested by means of an Esmarch bandage, and warm drinks given. There is generally at least one of these *Postes de Pansement* to each battalion. As soon as the shelling permits, the wounded must be carried to the *Poste de Secours*, which is generally situated a hundred yards or so in the rear, in some house. The wounded are carried to the heads of the communicating trenches, and at a favorable moment, transported on litters, either with or without wheels. At the *Poste de Secours* some immediately urgent operations may be performed, such as ligating for hemorrhage, tracheotomy for threatened asphyxia, etc. At this point ends the regimental service, and the divisionary surgeon takes charge. He has disposal of various horse-drawn ambulances or two-wheeled push carts.

In one particular division described by Ferraton (Société de Chirurgie of 16 March) the *Poste de Secours* was in a subterranean chamber hidden under a hay stack, and another was situated in the cellar of an abandoned house; in each case relatively safe from the shells which were bursting all around.

From the *Poste de Secours* the wounded are carried to the so-called Ambulances, of which there are two kinds:—

1. The first line divisional ambulances.
2. Ths ambulances of the second line (*Ambulance de Corps d'Armée ou de deuxième ligne*).

The first line ambulances, which, during the prolonged trench warfare have remained stationary, are generally, under ordinary circumstances, very mobile. The whole service can be packed on a few horse-drawn carts. They possess no beds, and are generally established in abandoned houses, the wounded being placed on clean straw. The duty of these ambulances is to receive the wounded sent by the regiments, perform the most urgent operations, but, more particularly, to make a choice of the wounded for distribution, hence the name *Ambulance de Tri*.

1. The slightly wounded are kept near the front.
2. The moderately wounded, who can stand a long journey, are sent to a sanitary train.
3. The very seriously wounded, who can only be transported a short distance, are sent to some neighboring ambulance.

The first group will be transported to a *dépôt d' éclopés*, the second to the evacuation hospital of the army corps, and the very severely wounded to a neighboring fixed surgical ambulance.

This latter is what is called a second line ambulance. It is situated in some neighboring village where there are comfortable buildings, and

where a good surgeon can perform many urgent operations on abdominal and head cases.

These hospitals may have a capacity of 50 to 100 beds and would quickly become overcrowded if the patients were not being constantly evacuated, either by means of a sanitary train to a base hospital, or, if too weak, to some surgical hospital of a neighboring village. The wounded have, therefore, successively passed by the Dressing Station (*Poste de Pansement*), the *Poste de Secours*, and the Distributing Ambulance (*Ambulance de Tri*). In this latter place they may remain not over 15 hours, often only a few hours, and from here, according to the gravity of their wounds, they are transported by horse-drawn vehicles or motor-ambulances to the *dépôt d'éclopés*, the evacuation hospital, or the ambulance hospital. If the service is well done, the wounded are delivered at the ambulance hospital from four to eight hours after having been picked up, and, in many cases, within two to three hours.

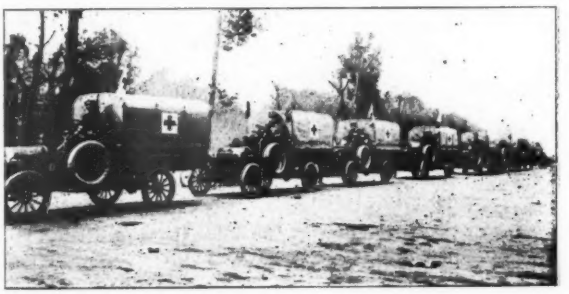
At the immobilized ambulance hospitals, the badly wounded cases are supposed to be kept, *i.e.* the head, chest and abdominal cases. The others are forwarded to the sanitary trains or canal boats or sanitary ships to be distributed according to the gravity of their lesions to more or less distant hospitals. The head station of these sanitary trains is called the *Gare d'Origine d'Etapes*, and the station of arrival is called the *Gare de Répartition*. There are two such depots in Paris, the Gare d'Aubervilliers and the Gare de la Chapelle St. Denis, with which our ambulance drivers are very familiar. This latter station, where sometimes 2000 wounded arrive in a day, is in charge of Dr. Quénu and is admirably organized.

This is where I shall try to prove that the methods of transportation could be greatly simplified by a better use of motor ambulances. You see how complicated the machinery is for transporting the wounded from the firing line, and how important it is that every stage of that complex journey should be carefully planned and carried out. By the judicious use of motor ambulances much of the changing from one vehicle to another would be obviated.

I must here give a short description of various forms of motor ambulances, and I must be forgiven if I speak a little more in detail of our Ford ambulances which have stood the test of nearly six months' steady use, both in field and base work.

In the early part of the war, whilst the committee was organizing this section of our American Hospital, I remember one day, on coming from a committee meeting, at the offices of the American Radiator Company, in Bd. Haussmann, seeing one of these cars standing in front of the door, the chassis being furnished with crude ambulance bodies made from wood of packing cases. It was a surprise to us. We knew they were being built, but we did not expect they would be ready so soon. I remember my emotion when Dr. du Bouchet and another member of the committee rode round the block, whilst we anxiously awaited their return and their opinion. The car was pronounced most comfortable, and it has since justified that verdict.

That was the first appearance of the Ford ambulance, and while some modifications have been made as to the details, the principle remains the same. The advantage of this car for work at the front is at once apparent. Its lightness, its exceptional clearance from the ground, and the power of its engine make the car a perfect one for work immediately behind the firing line. In the North, when the roads were muddy and bad, it was the only car which could get off the road into the mud to allow a convoy to pass and yet get back upon the road without the aid of a tow-rope. In the East, in the Vosges mountains where one of our sections is working in Alsace, they take the hills so well that the French soldiers have nicknamed them "the goats."

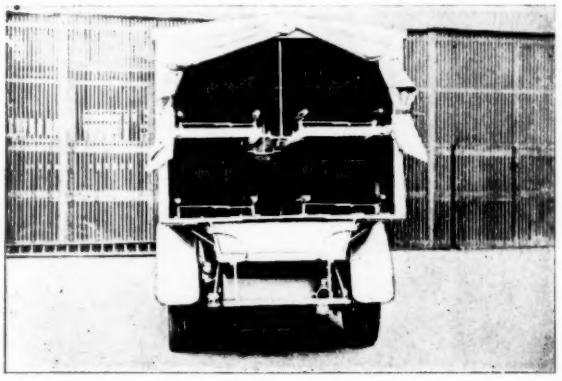


Though we have not modified the general shape of the ambulance, we have gradually improved the model, with regard to the comfort of the patient and also of the drivers. We found that a third stretcher would be of help, and this has been supplied. This emergency stretcher is placed on a wooden frame, which can be either strapped out of the way against the roof of the car, or secured in the center of the car above the other two stretchers.

Three lying-down cases are all that a Ford car can safely carry over rough roads without straining the springs. As for sitting cases, four can be accommodated in each car. At first we

allowed the wounded to sit on the floor with their backs against the sides of the car. Then we thought seats would be better, and we now have two transverse seats for four sitters.

So far as the Ford is concerned, I feel that it has a great future as an ambulance. In the transportation of the wounded the patients are most comfortable. At present, the wounded are being transported over 60 kilometers over rough roads to our branch hospital, at Juilly, and the men all declare that they much prefer to ride those forty miles to the journey of eight or ten miles which they had to make from the front to the first clearing hospital in such vehicles as I have just described—springless carts, etc. In fact, many of the men fall asleep in our ambulances during the journey to our hospital.

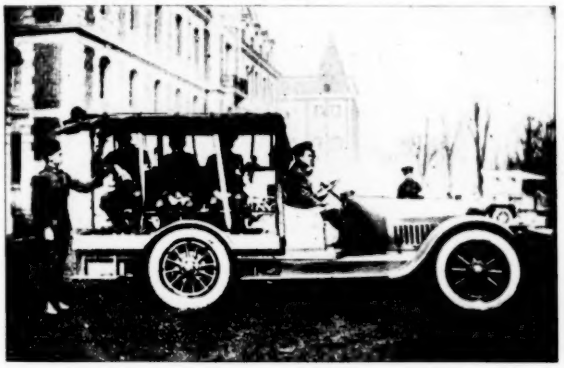


The larger cars of the Daimler or Wolsley types, carrying four lying to six or eight sitting, are good for base work, but they are too cumbersome to be able to run very close to the front. On the other hand, the Ford, with its low outline, can creep very close to the firing line without attracting the fire of the enemy.

To resume, motor-ambulances may be made to carry two, four or six lying cases, or from four to eight sitters. The stretchers may be pushed into the car from behind or from the sides, as in the Austrian model, and in a new ambulance invented by Com. Denain, of Versailles, which is now being made for the French Army, of which I am showing you an illustration.

This new ambulance is very ingenious and very practical. It loads from the side. The whole frame supporting the four stretchers rests on two transverse buggy springs, which absorb the shocks and make riding over rough roads

very easy, obviating longitudinal or transverse vibrations. All these points may seem trivial, but they are of the utmost importance so far as the comfort of the patient is concerned.



Many systems of suspension of stretchers based on spiral springs do not take this into account. I have several times tested this form of suspension by riding around over rough roads—and have found the vibrations most disagreeable, and realized how agonizing such a trip would be to those suffering from fractures.

The same criticism applies to the three-stage apparatus installed in so many of the sanitary trains. I refer to the Brechot-Deprez-Ameline

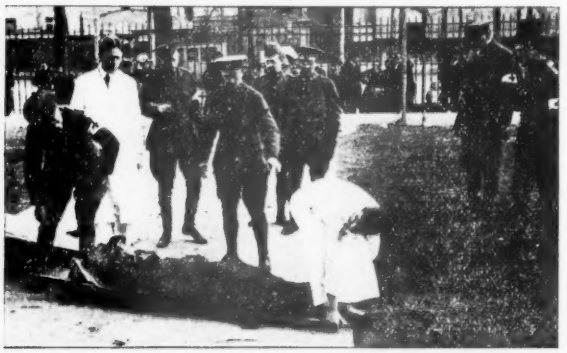
suspensions in which the stretchers are also supported by spiral springs.

The conclusions are obvious: the greatest comfort of the patient is obtained when the stretcher

is placed directly on the floor of the ambulance (as in the Ford), on rails (as in the Daimlers), or on rigid arms (as in the Denain). If placed on springs these must not allow of a transverse or longitudinal movement, but only of a vertical one.

In the transportation of the wounded the comfort of the patient should always be the first thought. The most painful injuries are compound fractures of the femur, and transportation is almost impossible unless the limb has been immobilized in some way. In our experience, the following simple appliance which Dr. du Bouchet taught us to use, was found invaluable. It consists of a double pillow filled with excelsior, which is placed round the limb and held in place by means of wooden splints, the whole secured together by means of straps and buckles.

I was impressed with a metal extension splint which Dr. Blake demonstrated to us at our last meeting. I believe this would bring even greater comfort to the wounded than our splint pillows.



The necessity of keeping the wounded warm during transportation is of paramount importance. It must be remembered that these poor men are generally suffering from traumatic shock, and that they easily get chilled. Even though they are covered with blankets, they lie on the cold canvas of the stretcher, with no blanket under them. We, therefore, tried to find a method of heating the car, and to keep the cold air out we secured the canvas sides and back. One of our members tried to utilize the heat of the exhaust pipes to warm the inside of the car. Though our experiment was not a success through a mechanical error, I am quite sure that the idea is a good one and could be worked out if the season were not too advanced for heating to be necessary.

In most cases sufficient heat can be obtained from a hurricane lamp which is kept lighted, suspended from the ceiling.

Now let me say a few words about sanitary trains, of which, as you know, there are three kinds: the *improvised*, the *permanent*, and the *ordinary passenger* train used for the sick or slightly wounded.

Unfortunately, our experience during the battle of the Marne taught us that there was a fourth train used for the transportation of the wounded, though it could hardly be called sanitary. This was composed of cattle cars which had been used for conveying horses to the front.

Of course the military operations were such that there was no time for any attempt to establish a sanitary train. Straw was spread on the floors of the cars and the wounded placed on it. It was at that time that so many of the wounded contracted tetanus and developed gas gangrene. Many lives would have been saved if

a little time had been taken to clean and disinfect the floors of these cars before placing the wounded upon them.

The most common train is that composed of baggage or cattle cars with the Brechet Ameline apparatus in either end, consisting of three tiers of three stretchers each, each car carrying eighteen wounded. In winter a little stove is placed in the middle.

The best train that I have seen is composed of second or third class compartments, with lateral doors, which permit the stretchers to be easily carried in and out (but it must be recalled that portières vary in width of opening, many of them being too narrow to permit of the passage of a stretcher).

The carrying capacity of these trains is 250 to 350 wounded, about four-fifths of which are sitting cases; in other words, there are but 60 to 70 lying cases in each train. There are about 20

orderlies, and one surgeon (rarely an assistant surgeon) to each train.

Unless the cars are intercommunicating, the surgeons can inspect his cases only at the stations, and these are sometimes three to six hours apart. This means that the wounded are practically without medical supervision during the whole duration of the trip, and when the train reaches the "*Gare d'évacuation*" or Distributing Station the methods of determining the gravity of the wounds are wholly inadequate. Fortunately, this service has been greatly improved.

Another defect in the system is the method of feeding the wounded. Often there is no provision for feeding them on the trains, and this is carried out at the stations where the infirmaries are established. Here the soldiers are stuffed with unsuitable eatables often, which causes indigestion and other troubles for those who are unable to take solid food.

The already lengthy journey is made almost interminable by frequent stops. The speed of the train is almost 40 kilometers an hour, and the trip from Amiens to Bordeaux, for instance, would take 48 hours. If the feeding of the patients was attended to on the train, the duration of the trip could be reduced one half. This has been tried recently on some of the trains with success, a restaurant car being attached for the feeding of the wounded and the personnel.

I want to speak of a little experience which I had (but fortunately this condition has been corrected now). I have seen a surgeon going from car to car, simply asking the orderlies if any of the men complained. If none complained (and do we ever hear these brave soldiers complain?) they were allowed to remain where they were and sent on to some more or less distant hospital in the provinces, many deaths resulting from the delay.

Another means of transportation is the canal boat or *Péniche Sanitaire*. I have had no experience with this method of transportation, but it seems to me that its great objection is that it is very slow and keeps the wounded from reaching a well-equipped hospital quickly.

I saw some magnificent sanitary ships at Boulogne, used to transport the British soldiers to England. This is undoubtedly one of the best means of evacuating the wounded, particularly when the sea is calm.

To resume: The conditions to be met in the transportation of the wounded are *comfort, speed* and *safety*. The first two we have dealt with, and the question of safety I will now consider. Safety implies not only the proper treatment of their wounds, but also the proper precautions againt danger of contagion from the medical cases.

In the beginning of the war there were practically no medical cases, but as the war goes on, the medical cases, among which is a large proportion of contagious diseases, are increasing in number. At least one-half of every sanitary train is composed of medical cases. They try to separate the contagious cases in the train, but it is very difficult to carry out this isolation when the surgical and the medical cases are not kept entirely apart. This defect in the transportation system is a very serious one.

To distinguish the cases readily, the soldiers should be carefully tagged with cards of different colors; for instance, *red* for surgical, *blue* for medical and *yellow* for contagious cases.

Having described, very imperfectly, the various methods of transportation now in use, I want to say a few last words on what I consider would be the ideal method of evacuating the wounded from the front. I should like to see the trains used only for the lightly wounded and medical cases, while the severely wounded should be conveyed by motor ambulances directly from the firing line to the temporary or even to the base hospitals.

This plan should be realized by the use of motor ambulance convoys attached to each army, and assuring a regular service between the first dressing stations or first clearing hospitals, and a base hospital. This would do away with the various and painful changes, the exhausting waits and the inevitable delays. I am sure that this would mean the saving of many lives.

I have already been too long, and there is no time to describe our own ambulance organization. Suffice it to say that it is fitted for just such work. Our units of 20 ambulances with a staff car and a repair car could be multiplied *ad infinitum*, and would be admirably suited for this convoy work.

It is with legitimate pride which should be shared by all Americans, that I am able to report that our various ambulances driven by volunteer Americans, have carried to date over 26,000 wounded soldiers, French, British, Indian, Belgian and German. Our American ambulances are now familiar objects all along the line. It is quite a common occurrence for our men to evacuate wounded from a sanitary train in Paris who have already been carried from the first dressing stations at the front to the head station of the sanitary train fully 200 miles from Paris.

FIRST IMPRESSIONS OF THE OPPORTUNITY FOR ORTHOPAEDIC WORK AT THE AMERICAN AMBULANCE.*

By Robert B. Osgood, M.D., Boston.

I have been somewhat uncertain since coming to the Ambulance as to just what an orthopaedic surgeon is supposed to be or to do. In a "sauf-conduit" I have been described as an "orthopédiste," which is apparently a chiropodist or corsetier.

* Read on May 7, 1915, at one of a series of medical meetings held at the American Ambulance, Neuilly, Paris.

In France, orthopaedic surgery has been most closely associated with tuberculosis of the bones and joints in children, and you are all familiar with the splendid work of Dr. Ménard and Dr. Calvé at Berck-sur-Mer. This type of orthopaedic work was the type from which the name of the specialty originated: *orthos,* the Greek word meaning straight, and *pais,* a child, *i.e.* straightening crooked children. Of late years, especially in America, we have been receiving some crumbs from the masters' tables of Medicine and Surgery among adults and like to derive the words from *orthos* and the verb *paideuo,* meaning to educate or to train straight, quite without regard as to whether children or adults are concerned. At any rate, let us not conceive the word to have anything to do with the Latin word *pes,* meaning foot, although this impression is very common because foot strain, especially in America, is so frequent a cause for orthopaedic treatment.

At first thought there would seem to be very little opportunity for orthopaedic work at a war hospital. Our friends among the enemy, however, are evidently finding this is not the case, and Professor Lange, the preëminent German orthopaedic surgeon, has been busy, both at the front and in Munich, which I believe has been made the orthopaedic base. I have here two interesting monographs by him on orthopaedic work in war which have lately been published. In England also Mr. Robert Jones has been put in charge of orthopaedic work of the English forces, and Liverpool has been made the orthopaedic base.

One can only give impressions, and I hesitate to mention even these after a few weeks' experience, being quite aware of the pity, if not the contempt, with which we treat the stranger who spends a week in America and then describes the race. It has been of great interest to see the very large number of compound and comminuted fractures, almost all of which are septic when they enter the hospital, and need further drainage. These present special problems which are unusual. The necessity for frequent and copious dressings and often constant drainage goes hand in hand with the necessity for immobilization as complete as may be, both for the promotion of union in good position, and the prevention of osteomyelitis of a chronic type.

It is only an impression, but a fairly definite one, that in these necessarily long-continued cases a problem quite as important as the healing of the original lesion is the conservation of motion and function in the joints in the neighborhood of the lesion, even if they have not been themselves originally injured. Stiff shoulders, elbows, wrists, knees and ankles are crippling in themselves, and once a fibrous ankylosis is firm, its healing is likely to require a far longer time than the healing of the original injury. If this stiffening can be prevented without sacrifice of the efficiency of the treatment directed toward healing the original lesion, it is surely quite worth while thus to prevent it. To make the point clear, a fractured humerus treated without abduction of the arm will frequently be followed by an adherent sub-acromial bursa or a stiffness of the shoulder joint proper. If the arm is constantly and deliberately abducted once or twice daily, or the fracture can be treated in constant abduction, no stiffness need result, and in the case of a joint lesion, the arm will be in the best position for use in case permanent ankylosis of the joint occurs. There is perhaps no joint in which the position in which it is placed is of so much importance to its future function as the elbow, and ankylosis or restricted motion is very common. An angle a little more obtuse than a right angle means the patient cannot touch his face or feed himself; an angle a little more acute than a right angle means very satisfactory function. The hip has so wide a range of motion and is such a firm joint that, provided adduction and flexion are prevented, the eventual function is good. The knee position depends entirely upon the probable end result as to stiffness or motion. If complete ankylosis is to be expected a slight degree of flexion is more comfortable and useful. If any eventual motion is likely, hyperextension is most to be desired, since walking on a partly flexed joint in which there is motion is likely to become increasingly painful and to lead to many chronic articular changes. The ankle should always be flexed at a right angle. Perhaps this is not quite as important to the French women as to the French men since the national heel insists upon a certain amount of equinus.

Two important groups of cases have been apparently quite common at the Ambulance, resulting from nerve lesions and consisting of localized paralysis. The first is wrist drop from injury to the musculo-spiral nerve, and the second is foot drop due either to a spinal cord injury or to a lesion of the external popliteal nerve. Mr. Robert Jones has always emphasized in cases of paralysis, more particularly paralysis of poliomyelitis, the importance of preventing overstretching of the paralyzed muscles by allowing the malposition to be maintained, so that we may consider that apparatus may be not only retentive, but corrective as well. It is very pleasantly surprising frequently to see seemingly paralyzed muscles regain power when they are taken off the stretch as by a "cock-up" or elastic traction splint for the wrist or a toe drop splint for the foot.

We have had one case which illustrates the value of immobilization in cases of toxemic arthritis when the process is acute. These cases will undoubtedly be rare in a war hospital, but may very well occasionally occur secondary to a septic process. Immobilization in these cases of the affected joints, not only gives relief to the pain, but seems definitely to make less likely the spread to other joints and to diminish the con-

stitutional effects which are frequently very much more marked in joint infections than when other and quite as important tissues are involved.

There can hardly be any question as to the value of the appreciation of the principles of the prevention of deformity to the cases under treatment, and the importance of it as an economical measure for the hospital and for the Government is obvious. Later on, undoubtedly, surgeons will have the opportunity of acquiring a more perfect technic in operations for recovering motion in stiffened joints. Arthroplasty is still in its experimental stage, despite certain brilliant results and much literature on the subject. One essential has been already emphasized; this is that a long time, perhaps a year, should elapse between the subsidence of a septic process in a joint, and the attempt to obtain motion by an arthroplastic operation. The field, however, must evidently be enormously widened by the unfortunate lesions of this war.

It may be of some interest to you to see some of the apparatus which is being employed by the Harvard Unit; little of it is original, and it is of value only in so far as it makes war surgery more easy and aids in preventing and correcting deformity and adding to the comfort of the patients.

I wish especially to thank Miss Cassette, in charge of the supply and apparatus department, for her great help. The apparatus work in the Ambulance is already of such a high grade that I fear we have simply brought coals to Newcastle.

Original Articles.

SOME PARALYTIC CONDITIONS RESULTING FROM SURGICAL AND OBSTETRICAL ACCIDENTS.*

By James Warren Sever, M.D., Boston,

Junior Assistant Surgeon, Children's Hospital, Boston; Surgeon, House of the Good Samaritan.

I have been asked to give you tonight a brief resumé of some of the more common paralyses following surgical and obstetrical accidents. None of these conditions are of common occurrence, fortunately, in any one man's experience in general practice, but are frequently seen in hospital clinics. This is especially true of two such conditions as cerebral spastic paralysis and obstetrical paralysis, which are seen in children in considerable frequency in various nerve departments of hospitals.

* Read by invitation before The Brookline Medical Society, April 5, 1915.

The other two conditions which I shall take up are Volkmann's ischemic paralysis and paralysis of the musculospiral nerve following fracture of the shaft of the humerus.

Volkmann's Ischemic Paralysis. In 1869 Volkmann first described the clinical picture of a contracted wrist and hand following a fracture, with atrophy of the forearm, known since as Volkmann's paralysis or contracture. His first case, however, occurred in an acute synovitis of the knee, following the application of a ham splint. The gastrocnemius muscle showed diminished electrical reaction and a moderate amount of contracture, which improved without operation. His first paper was followed by another in 1881 in which he emphasized and elaborated certain points.

Lesser, in 1884, reported seven cases of fracture of the arm involving either the humerus or the two lower arm bones, followed by Volkmann's ischemic paralysis. He also attempted to reproduce the condition experimentally in twenty-three rabbits, but was unsuccessful. Others since have tried to reproduce the condition by animal experimentation of various sorts, directed towards the muscles and arteries, but have failed to get conclusive results.

What are the Causes of Volkmann's Ischemic Paralysis? Volkmann has laid down the statement that the condition follows the use of too tight bandages, usually after fractures, particularly on the arm, and occasionally on the leg, and that the paralyses and contractures are ischemic in origin, due to the cutting off of the arterial blood supply. He states that the paralyses and contractures generally come on together, while paralyses due to nerve pressure come on gradually. There is always great rigidity of the muscles from the first, due to great swelling, so that the part has a woodeny feeling. The ischemia is not complete, in that the part does not become gangrenous. The condition may also be seen after ligation, rupture and contusion of the blood vessels, as seen in a case reported by Astley[1] of Philadelphia in 1908, due to an embolus or thrombus of the brachial artery.

Murphy[2] states that he believes the condition is due to a blood and serum effusion in the subfascial zone, which causes cyanosis of the whole arm from pressure, followed by inflammation of this blood clot. The pressure, caused by this effusion, results in muscle cell destruction and necrosis, aided by tight bandages and splints. He believes that tight bandages, aided by tight skin and fascia, cause the damage, which is practically all accomplished in the first forty-eight hours. In other words, it is a traumatic myositis, resulting in permanent destruction of muscle tissue and so contractures, with or without nerve involvement in the scar tissue so formed. He does not agree with Volkmann, that injury to the artery plays any part in the destruction of the protoplasm of the muscle cells,

but that pressure from the exudate and venous obstruction are the factors which cause the subsequent train of events.

Most frequently the condition is seen following fractures of the lower portion of the humerus and the bones of the upper forearm in children. The supracondylar region seems to be the region of election, and the majority of cases seen are under fifteen years of age.

The irreparable damage to the muscle is accomplished within the first three days, but the full extent of the contractures does not appear at once. The damage is always done on the flexor surface of the part and is a flexor contracture and never an extensor contracture.

There is almost always some impairment of sensation or paralysis of the small muscles of the hand, due to nerve involvement or injury at the time of the accident.

The pathological muscle changes represent typical hyaline degeneration and disappearance of muscular tissue in varying degrees, according to the severity of the original process.

Symptoms and Onset. Now what is the method of onset and what are the symptoms? After a fracture, usually of the upper extremity, which has been splinted and bandaged, there may be noted incipient swelling of the part, with stiffness and cyanosis of the hand and fingers and forearm. There is almost always marked and intense pain, more than can be properly due to the fracture *per se*. These conditions are soon followed, if the bandage and splint are not removed, by limitation of motion and then complete loss of motion in the hand and fingers. The swelling may subside of itself, if the splint and bandages are not removed, but greater damage will probably be produced, and pressure sores are likely to result. If, on removal of the bandage and splint, great swelling is present with a very tight skin, free incision into the forearm should be made in order to relieve the tension. Probably in some cases this procedure would be of great help and relief.

Following the Establishment of the Contracture, What Is to be Done? Many methods have been tried to relieve the contracture, but none has been wholly successful. As the arm grows, the muscles and tendons become relatively shorter and so lead to greater contractures. The bones of the forearm have been shortened in a number of cases with and without benefit. Tendon lengthening has been tried and again has proved to be of use in certain cases, but is a long and elaborate operation, and is quite likely to lead to more adhesions. The method which seems to offer the best result is the one which divides the muscle bellies by free incisions and so lengthens the tendons.

The after-treatment is of the greatest importance and consists of the use of a palmar and dorsal splint to prevent and reduce the contractures of the wrist and fingers; electricity, galvanic and faradic, if there be nerve involvement, and massage and manipulation. Treatment should be long continued, but in many cases the benefit to be derived from any or all of these methods is not very great, and it is only rarely that a very useful hand is obtained. The results, however, are much better than if nothing had been attempted.

Musculo-Spiral Paralysis. This condition is not very rare, and usually follows fracture of the middle third of the shaft of the humerus. The musculo-spiral nerve, as it passes around the humerus from behind and to the inner side of the humerus, downward, outward, and forward in the musculo-spiral groove to the outside of the humerus, becomes involved in the callus or impinged on by a spicule of bone. Involvement of the nerve and subsequent paralysis may follow fractures of the upper third and lower third of the shaft of the humerus, but its occurrence under these conditions is very infrequent.

Its occurrence is a serious accident and complication, and usually calls for careful study and possibly surgical interference. It is a condition which may be overlooked at first, and is not usually noticed until the splints are removed and the patient attempts to move his hand, when it is noted that there is paralysis of the extensor group of the arm and hand, resulting in the typical wrist drop. The hand is held pronated and there is no power to supinate.

The paralysis is usually wholly motor, even when the nerve is greatly injured. There may be some slight impairment of sensation, but it is never very great. The reason of this preservation of the sensation, when the nerve is so greatly injured, may be attributed to the fact that the cutaneous branches leave the trunk of the nerve above the fracture and probably carry sensation to the radial half of the hand. Sensory symptoms have no relation to the amount of motor impairment; when loss of sensation is present, it may usually be found in the distribution of the radial nerve in the hand, namely, on the dorsum between the metacarpal bones of the thumb and forefinger.

Period of Onset. If the nerve is torn at the time of fracture, there is, of course, immediate loss of function, and paralysis at once appears. If due to involvement in the callus or pressure from bone spicules, the onset is more gradual and will probably not appear until about the beginning of the third week.

The prognosis is usually good if the condition is recognized early. About 50% of the cases require operation. Others get well without one. In cases where involvement in the callus is the only condition present, the result from operation will generally be perfect. In others, where the paralysis is due to tearing, stretching, or complete section of the nerve with separation of the ends, an early operation offers better results than a long deferred one, but even with nerve suture or nerve lengthening, the results

may not be ideal or even good. The following case is one of interest:—

Several years ago I saw in consultation at the Waltham Hospital, a man who had had his arm broken in two places. The fractures were located at about the junction of the middle and upper third of the humerus and at about the junction of the middle and lower third of the radius and ulna. I saw him about four months after the date of fracture, and after the union had become solid. One month after the fracture, it was noted that he had a wrist drop and paralysis of the extensors of the forearm with no voluntary motion of wrist or fingers. Subsequently, he had typhoid fever, from which he was convalescent when I saw him.

The injury was on October 2, 1909. The paralysis was noticed on November 2, 1909; and on February 28, 1910, I operated on him. X-rays of the humerus showed that there was moderate lateral displacement of the fragments of the humerus, with only a fair amount of callus. The operation showed that the musculo-spiral nerve was stretched tightly over the sharp lower edge of the upper fragment and then became involved in the callus. The nerve trunk was very thin and atrophic, but was continuous. It was freed thoroughly and lifted up, and under it, between it and the bone, was sewed a piece of the tricep muscle to prevent further callus involvement. Following this, the bones of the lower arm were resected as they were overriding. The ends were approximated and held together by kangaroo tendon. He made a good recovery and in three months had a useful arm, but still had some slight paralysis persisting. He was again operated on on May 27, 1910, and a few spicules of bone were removed from the inner aspect of the humerus at the site of the fracture through an incision on the internal aspect of the arm. These spicules pressed on the portion of the nerve as it began to wind about the humerus on its internal aspect. Following this he made a perfect recovery. In October of 1910, five months later, he was readmitted for a fracture of both bones of the same arm in another location, following a fall. At this time he had completely recovered from his musculo-spiral paralysis.

It is probable that if this case had not been operated on, sooner or later the edge of bone would have completely cut through the nerve and the chances of success then from operative procedure would have been much diminished.

Increasing paralysis demands surgical intervention in these cases, as well as a paralysis which shows no tendency towards improvement. After-treatment is always of the greatest importance and is to be carried out by means of massage, electrical stimulation, baking, and active motion as far as possible.

We will now take up paralysis accompanying obstetrical cases:—

OBSTETRICAL PARALYSIS, OR BIRTH PALSY.

Obstetrical paralysis, or birth palsy, is produced by injury to the fibres of the brachial plexus, usually the result of a difficult labor, and caused by forcible separation of the head and shoulder on the affected side. Obstruction to the after-coming head, with a pull exerted on the shoulder, or vice versa, is the accepted method for producing the nerve lesion. T. Turner Thomas of Philadelphia states he believes that the paralysis usually results from a laceration of the axillary portion of the joint capsule, following an injury to the shoulder joint itself, occurring at birth. This tear in the capsule produces an inflammatory serous exudate which involves the branches of the brachial plexus adjacent. He believes that there is always in these cases a primary traumatic subluxation of the head of the humerus, accompanied by a laceration of the joint capsule, rather than a primary nerve lesion. He fails to back up his statements with pathological evidence, however, of which there is sufficient on the other side to tend to disprove his theory. It is perfectly true that later, as the child grows older, there is, in many cases, a posterior subluxation of the head of the humerus, accompanied by bony deformity of the clavicle and acromium. Early cases, in mine, and others of larger experience, have never shown this condition. Congenital dislocation of the shoulder is not accompanied by brachial paralysis. Separation or fracture of the humeral epiphysis may be accompanied by paralysis resembling that seen in cases of birth palsy, and I have seen one such lately in an eight weeks' old baby. X-rays will generally show fractures or epiphyseal separations or dislocation of the joint, which may be of sufficient severity to cause secondary brachial paralysis.

The condition is usually noticed at once following delivery, and presents the following typical picture. The arm hangs at the side, limp and helpless; the hand is pronated; the elbow extended; and the humerus in extreme inward rotation. There is present a distinct inability to raise or abduct the arm at the shoulder, due to the paralysis of the deltoid and supraspinatus. The arm cannot be rotated out because of the paralysis of the infraspinatus and the teres minor. The internal rotation is marked and constant, due to the unopposed contraction of the subscapularis, latissimus dorsi and the pectoralis major.

This position is due to injury of varying degrees of the fibres of the brachial plexus from stretching or tearing forces, as shown by Clark, Taylor, and Prout,[3] in experimental work and by autopsy on cases. The fibres may be torn, or may be compressed by a surrounding hemorrhage about or within the sheath of the cord, or the stretching may be accompanied by only a serous exudate within the sheath.

There are two distinct types of paralysis resulting from this injury, the so-called upper and lower arm types. The upper arm type usually is the more common and is the result of injury to the two upper segments of the brachial plexus, formed by the fifth and sixth cervical segments. When the seventh, eighth and first dorsal segments are likewise involved, the paralysis is more complete, and the so-called lower arm type results.

The upper arm type results in a paralysis of

the deltoid, supra- and infraspinatus, brachialis anticus, biceps, supinatus longus and brevis. The lower arm type results in more complete paralysis, involving practically all the shoulder and lower arm muscles, as well as those of the hand.

Sensation is, as a rule, not impaired, due to the probable integrity of some of the unimpaired collaterals.

The two muscles which are usually spared are the subscapularis and the pectoralis major, the latter causing adduction of the humerus, and the former holding it in marked inward rotation. The reason for this is that the subscapular nerve is usually given off from the posterior cord of the brachial plexus and receives filaments therefore from the fifth, sixth, seventh, and eighth cervical segments. It is because of this liberal supply largely from the seventh and eighth cervical segments, that it continues to functionate, even if some of its fibres are destroyed which come from the upper segments, which are the ones most frequently injured. The pectoralis major is also supplied by a nerve, known as the external anterior thoracic, which comes from the outer cord of the plexus, made up of the fifth and sixth cervical segments, but also receives collateral branches from the seventh and eighth.

The fact that the supra- and infraspinatus are practically always paralyzed, points toward a primary injury to the plexus, for the suprascapular nerve which supplies them, comes off from the plexus too far above the shoulder joint to be involved in any exudate which might be present about it as a result of a tear in the capsule.

The Arm Being Found in the Condition above Described, What is to be Done? It must be determined whether or not a fracture, dislocation or epiphyseal separation is present. This can usually be determined by the customary methods of examination, supplemented by x-ray examination. Tenderness and swelling about the joint are of importance, and tenderness on pressure above the clavicle over the course of the brachial plexus should be determined. Tenderness and swelling in the axilla might also indicate an exudate about the lower portion of the plexus.

Inequality of the pupils should be noted, if present. If there is an inequality, it means that there has been, without question, an injury to the inner cord of the brachial plexus, high enough up to cause stimulation of the sympathetic branch of the cervical sympathetic plexus, which sends off a communicating branch from the fifth cervical segment of the cord. The paralysis of the muscles involved should be determined as carefully as possible. As one of the commandments of orthopedics, I believe that it is essential to prevent deformity and contracture in any case. Therefore, it would seem best, in any case, to elevate, outwardly rotate, and abduct the arm and hold the hand supinated. This can be done easily, and the position maintained by means of plaster of Paris, or by a wire splint. This position should be maintained at all times, except when the arm is released for massage and exercises, which should be done daily and for a long period, say, at least, several years. The maintenance of this position prevents contractions of the subscapular, latissimus dorsi and pectoral muscles, and stretching of the paralyzed ones. The principle is no different from that which we use in the early treatment of cases of infantile paralysis to prevent deformity. One good argument on the other side should be considered, however. Persons with long experience and good success in the treatment of these cases, say that it is not wise to fix the arm of a young baby in such an apparatus as has been described, for the fact that the child will forget to use it, and so it will be more difficult to make it use it. The child will become obsessed with the fact that the arm cannot be used and progress will be delayed and the end-result will not be so good. They believe that such contractures and malpositions as may occur or persist, are to be discounted in favor of early and constant use and training, rather than the possibility of no contractures and less ability to use the arm freely. Personally, I have not become convinced of the logic of this last argument, and still think that an arm in as good an anatomical condition as it may be possible to make it, will eventually be a more useful arm than one which has been allowed to become fixed in inward rotation through contraction, together with more or less posterior subluxation of the shoulder joint, as is almost always seen in the older cases. Corrections of these two deformities, together with osteotomy of the acromium, which frequently grows down in front of the head of the subluxated humerus in older cases and prevents its full replacement, generally results in a much better and more useful arm. Why not prevent the necessity for these procedures by taking the proper precautions at the beginning?

Probably subluxation posteriorly usually occurs, because of the excessive pull of the contracted subscapular and latissimus dorsi muscles, which pull the upper end of the humeral shaft backward, helped to a certain extent by the forcible adduction and inward rotation forces applied by the contracted pectoralis major.

Patience and perseverance are needed in the treatment of these cases, besides careful supervision over a period of years—accompanied by constant exercises and massage. The results in the past have been fairly good. The future promises better ones, in view of increased knowledge, or better, our different point of view and clearer understanding of the problem.

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HOMOGENIZED MILK: ITS POSSIBLE APPLICATIONS TO INFANT FEEDING.*

By Maynard Ladd, M.D., Boston.

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Homogenization of liquids of different densities consists in reducing the constituent elements into such a physical condition that they will no longer separate, but will maintain a permanent and even composition throughout the mixture.

Briefly stated, this result is brought about by a powerful pump which forces the mixture through a finely ground agate valve against great pressure. After its passage, the mixture is perfectly homogeneous, and in the case of milk, or mixtures of milk and oils, the fat globules are crushed, torn and pulverized and so incorporated with the other elements of the milk, that they can no longer rise by action of gravity, separate after long standing nor agglutinate.

The mechanical device by which this result is made possible is the invention of M. A. Gaulin of Paris. His first machine was brought out in 1899. With this the fluid elements were forced through very fine capillary tubes, but the practical results were not perfect, owing to the fact that many of the fat globules passed through the smallest possible capillary tubes without alteration. M. Lindet, of l'Institut Agronomique, who had interested himself in Mr. Gaulin's invention, demonstrated that the ascending force of fat globules were proportionate to the cube of their radii, and that the principle of stabilization of milk consisted in reducing these radii to a dimension as near as possible to zero. The diameter of butter fat globules varies from 1/100 to 1/1000 of a millimeter, whereas the smallest holes that can be bored in a metallic surface is about 1/10 of a millimeter. This led M. Gaulin to adopt an entirely new method of carrying out his original idea, and in 1902, he announced his invention of a device which subjected the fat globules to great pressure between two surfaces, exactly adjusted to each other, but sufficiently elastic to permit the passage of the most minutely divided particles.

The essential patent in this homogenizing machine is an agate valve, so finely ground that it will leak only under great pressure, and held in its bed by a variable tension spring, which is regulated by a fly wheel with a screw end. The mixture is pumped against a pressure which may vary up to 500 kilos. The pumps vary in capacity from 50 to 2000 litres per hour; according to the size.

It is not my intention to enumerate in detail the commercial applications of this process, which has been extensively used on the continent and in England and to a considerable extent in this country. The chemical composition of the milk is in no wise affected, but in cases of milk and cream mixtures, the physical condition is so changed that the fat can no longer be separated by the usual cream separators. In making the Babcock fat test more acids must be used and centrifugal action continued for a longer time.

Homogenization improves decidedly the taste of the milk or cream, particularly that of pasteurized milk. As the process prevents the separation of the fat, homogenized creams can be readily pasteurized. When commercial milk is to be transported long distances in warm weather, and its temperature allowed to rise from lack of proper refrigeration, the continual jolting to which it is subjected causes the cream to be churned into butter fat, and it is impossible to reincorporate it into the milk in its original form. The same disturbance of emulsion may, under similar conditions, happen to milk modifications. We are all familiar with the greasy surface seen in summer in the bottle of milk brought to the clinic by the mother who lives at a distance, so that a considerable quantity of fat is often taken into the baby's stomach in large indigestible globules.

The application of homogenization to ordinary whole milk or to any kind of a milk modification, will overcome this defect; and theoretically it would seem as if it would yield a much more digestible mixture. This is one of the points I hope we shall be able to determine in the series of cases I have planned.

Variot, in Paris, has used an homogenized milk in the "Goutte de lait" de Belleville. He claims it is taken as successfully as breast milk and has never seen cases of infantile scorbutus nor rhachitis which could be attributed to its use. Chevalier demonstrated by chemical analyses that the constituents of homogenized milk are more completely absorbed than those of simple sterilized milk. The more finely divided the food, the greater is its accessibility to the digestive fluids, and the greater its assimilation.

It is interesting to note also that when rennin is added to homogenized milk, the curd which results is a homogeneous flaky paste, resembling bling closely the curd of human milk.

The process of homogenization has a beneficial effect upon its keeping qualities. An official in the laboratory of M. Gaulin is authority for the statement that milk sterilized and homogenized has been shipped by various methods of transportation for more than 14 1/2 months, and at the end of that time has been found "as good as fresh milk," without the application of ice or addition of preservatives. This fact, if verified, might have an important and practical effect in the shipment of modified milk to distant points. It may be found that one or two shipments a week is safe and practical. If this is so, it would mean a great saving in expense to the consumer, and would facilitate the distribution of prepared mixtures to distant points.

Recently, while discussing various feeding problems with Mr. F. C. Howe of the Walker Gordon Company, I first learned of this inven-

* Read before the meeting of the New England Pediatric Society on Feb. 26, 1915.

tion of M. Gaulin. The idea of utilizing it to improve the quality of ordinary milk modifications occurred to us at that time, and it required very little imagination to foresee a possible field for investigation into infant foods which may open many new lines of study. Through the kindness of Mr. Walker, and the coöperation of Mr. Howe, we were able to secure temporarily for experimental purposes one of the homogenizing machines and install it in the laboratory, where it could be run by the power plant of the refrigerating apparatus.

The most interesting application of this principle of homogenization is in connection with the fat constituent of milk modifications, especially in cases of so-called "fat intolerance." These feeding cases are, perhaps, the most difficult ones with which the pediatrist has to deal. Their general characteristics have been so well and so recently described before this society by Dr. Dunn, that it is hardly necessary to discuss them in detail tonight. Briefly stated, one recognizes a class of feeding cases in which the fat of cow's milk, if given in too large percentages, leads to a digestive crisis of a serious nature. The restoration of the infant's tolerance for fat then becomes a very slow and gradual process. During this period the nutrition suffers severely. There are, of course, all degrees of intolerance. The milder cases may generally be corrected and controlled by careful feeding. The severe cases often resist our best efforts and pursue an interrupted downward course. Certain of these babies are capable of digesting high percentages of carbohydrates and proteins so that the nutrition of the body can be maintained, but others are unfavorably affected by such an unbalanced ration. Without recourse to breast milk, they cannot be made to thrive.

The fact that the great majority of cases of fat intolerance occur in artificially fed infants, and the further observation that, in the first year at least, they generally respond favorably to breast-milk, raises the interesting question as to whether it is fat *per se* which causes the familiar symptom-complex or simply the peculiar qualities or reaction to the fat of cow's milk. Generally speaking, breast milk contains a much higher percentage of fat than that which has been given in the milk formula, and yet, under its use, the symptoms gradually disappear, and metabolism is restored to its normal basis.

These considerations have led to more or less experimentation with vegetable oil, and fats of other animals, such as lard, and with cod liver oil. But we have now an opportunity to combine such fats and oils with other milk ingredients in a practically perfect and permanent emulsion, so that we may reasonably expect a totally different result from their use.

If, as a matter of experiment, one can show that olive oil, for instance, is readily digested and assimilated when homogenized with skim-milk, in these cases of intolerance to cow's milk fat, one can then seek by more detailed experiments, of a more exact and scientific method, to find out what element or elements of cow's milk fat is the source of the toxic substances which seem to be formed in the processes of digestion.

One of the most striking facts which recent metabolism experiments in infants has shown is the interrelation of the various ingredients of milk in normal metabolism. A disturbance in the digestion of an element frequently influences the metabolism of the other elements, and the end result, which we see in the vomiting, diarrhea, abnormal stools, malnutrition and toxemia, represent a very complex series of antecedent causes.

Now, if we can separate in a pure state and recombine into a homogeneous mixture the necessary food elements for an infant, we have advanced to an interesting stage of experimentation to determine some of the possible primary causes which start up the train of symptoms leading to the digestive explosions so often seen in the artificially fed infants.

It is possible, for instance, by this process of homogenization to combine an almost pure olein, or palmitin, or stearin with fat-free skim milk, and so eliminate almost entirely the influence of the various fats of cow's milk. By using a chemically pure precipitated casein, we can combine pure casein with pure oils and pure sugars of different varieties, adding artificially prepared mineral matter in varying proportions. Such mixtures, homogenized, may be found to be of use in exact metabolism experiments, although they would be too expensive and complicated for practical feeding.

We may combine a vegetable fat, such as olive oil, with precipitated casein, or fat-free lactic acid milk, and test its food value in acute diarrheas, or in convalescents from acute diarrheas, conditions in which the ordinary fats of milk are not well tolerated. I have had an opportunity so far to test the tolerance to olive oil in these acute infections in three cases only; one a convalescent from a severe infectious diarrhea, and two during an infectious diarrhea at the end of the first week of fever. In the convalescent case, the child, two and a half years of age, took two per cent. of olive oil in a fat-free lactic acid mixture and gained over a pound in four days. The case returned then to the country and I was not able to observe further its use.

In the other two cases the 1.50% of olive oil was given in a malt soup mixture. Both children, one one year, the other three years of age, have steadily improved. As the cases are far away from Boston and the parents have no means of weighing the children, my observation of the effect of the food is incomplete, but the result at least justifies the hope that such cases can be given food of higher caloric value by this method, with less disturbance of nutrition and greater conservation of strength. Dr. Wyman and I are planning more extensive and accurate

investigations along this line, through the courtesy of Dr. Bowditch, when the material which the Floating Hospital will furnish is available.

Mr. Howe is at present experimenting with the effect of an homogenized mixture, cotton seed oil and skim milk, upon calves. A perfect emulsion is obtainable. Whether such a food, which could obviously be produced at the minimum of cost, could be of use to infants, is at present interesting as a speculation only, but is worth investigation.

A more practical problem at once suggests itself in mixtures of olive oil and skim milk—especially in combination with the malt soup mixtures.

The type of food which I have found most useful in cases of fat indigestion with extreme malnutrition, is the malt soup mixture. Many of the worst cases are amenable to successful feeding by this method intelligently applied. However, we do meet with failures, and if we are to fairly test the applicability of an homogenized olive oil malt soup combination, we ought to select our cases from those who have been carefully fed in the past and yet failed to respond.

I have chosen olive oil for my first experiments, as olein is the principal fat of breast milk. The economic aspect of such a mixture, it seems to me, is of immense importance. The principal cost in milk modification depends upon the value of cow's fat or cream. Olive oil, even at ordinary retail prices, costs about one-fourth as much as cream. If combined with fat-free milk, the cost of a modified milk could be greatly reduced for the benefit of the poor, especially if we are able to demonstrate the possibility of keeping sweet and palatable, for several days a pasteurized homogenized milk.

Another point in connection with the malt soup olive oil mixtures is the effect of the homogenizing process upon the starch. The tendency for the barley decoction to separate on standing is strikingly prevented. In fact, any milk modification is improved in taste and appearance by this process of homogenization. It has been shown that whole milk so treated is more easily digested and assimilated. Homogenization of modified milks would, therefore, seem to increase their efficiency if used in cases in which there is no marked intolerance for cow's fat.

There are other fats and oils, besides olive oil, which I am planning to use as substitutes for cow's fat. Cod liver oil, for instance, homogenized with fat-free milk, or malt soup mixtures is fairly palatable as compared with ordinary methods of administration, but I have not yet tried it in a case of difficult fat digestion. Banana oil and the oil of the soja bean might also be tried.

Tonight I wish to call your attention to two cases only, which were my first selected difficult cases, both over two years of age, showing in one case, extreme, in the other, considerable, emaciation, with intolerance for fat and failure to respond to the usual resources of feeding.

Case 1. E. C. Age, 2½ years. Date of admission, Jan. 23, 1915.

Family History. Negative.

Past History. Instrumental delivery. Birth weight 9-10 pounds. Put on barley water and milk. Was kept on this for three months. Was then given milk, bread and butter. First teeth at 4½ months. Talked at 8 months. Walked at 1 year.

Present Illness. Five months ago began to vomit immediately after eating. Vomiting persisted. Child was put on Walker-Gordon formula for three weeks. Vomiting ceased. Then put back on bread, potatoes, butter and beef juice. Did not vomit. Two months ago vomiting began again. Diet changed frequently without relief. Abdomen became large one month ago, swelling would be noticeable for a day or two then would disappear. Has remained swollen the last three weeks. Bowels constipated, not remarkably. Swelling of hands and feet for the past two weeks. Losing weight for past four months. Frets a great deal. Appetite is good, no urinary symptoms.

Physical Examination. W. D. and P. N. Loss of weight evident. Very irritable, pale. *Head:* Normal. Eyes normal. Ears negative. *Mouth:* Teeth 6/6. Tongue moist and clean. Throat clear. *Neck:* Normal. Glands not enlarged. *Chest:* No rosary. Lungs normal. Heart normal. *Abdomen:* Distended, tympanitic. No masses, tenderness or fluid. Liver and spleen not felt. *Extremities:* Reflexes normal. Slight firm edema of both hands and feet, also of arms reaching just below elbows. *Skin:* Clear. W. B. C. 15,000. Hemoglobin 40%. Von Pirquet negative.

Jan. 24, 1915. Stool, light grey non-formed, undigested potato. Acid reaction. No curds. Micro. Large excess of starch. Great excess of soap and fatty acid.

Jan. 25. ℞ Low fat and low starch diet. Urine normal.

Jan. 31. Stool—light yellow, partially formed, salve like, slightly acid reaction. No curds. Micro. No neutral fat, no fatty acid. Considerable fat as soap, no starch. Persistent loss of weight and persistence of edema.

Feb. 1. Put on olive oil milk, 1.50 olive oil, 5.00 maltose, 1.75 protein, 0.75 barley starch, 5.00 lime water.

Feb. 2. Hungry, No vomiting. ℞ 9 oz. 6 i. d. Barley jelly, b. i. d.

Feb. 5. Stool—large, soft, non-formed, light yellow. Few small, soft, yellow curds, faintly acid. Micro. Considerable neutral fat, no acid, no soap, no starch.

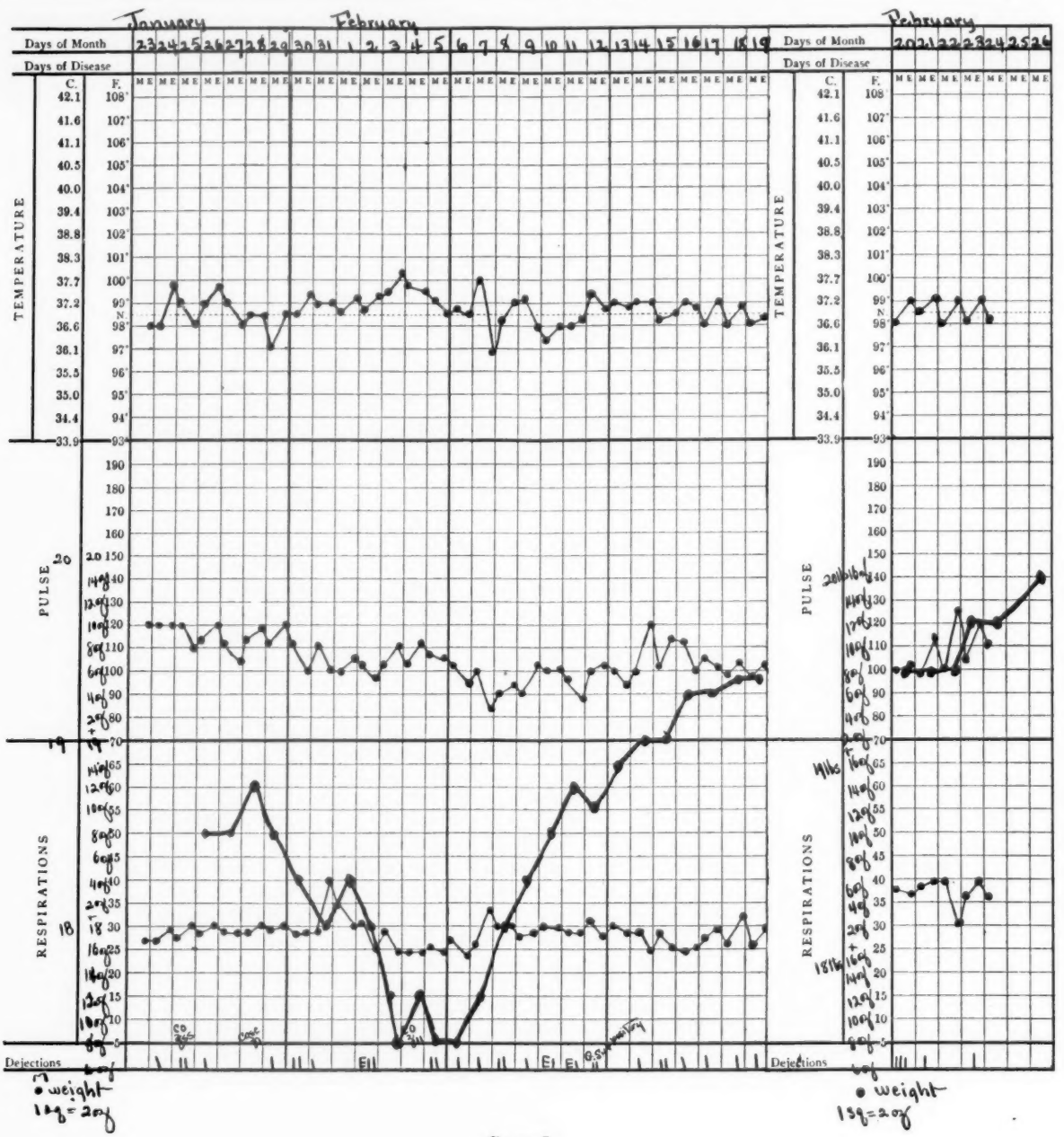
Feb. 6. Color better. Disposition greatly improved. Takes food eagerly. No vomiting. Bowels 1 to 2 i. d. Has lost 12 oz. since put on special mixture, probably due to absorption of edema, as the swelling of hands and feet has disappeared.

Feb. 8. Stool—light yellow, non-formed, salve-like. Few fat curds. Alkaline. Great excess of neutral fat.

Feb. 9. Gained 8 oz. last three days. Takes food easily, looks much brighter, better color.

Feb. 11. Stool—reaction acid. Moderate excess of neutral fat, no soap, no starch.

Feb. 12. Gain of 4 oz. daily for the last 7 days. Acts happy. Color better.



CASE I.

Feb. 15. Stool—partially formed, yellow. No curds, alkaline, small amount of neutral fat.

Feb. 15. Sore tongue. Normal temperature. Skin clear. Gained 1½ pounds since put on special milk. Stools 1 to 2 i. d.

Feb. 18. Tongue much better. Stool—formed, yellow, no curds. Alkalin. Slight excess of neutral fat, no soap, no starch.

Feb. 20. Gained 8 oz. last four days. Hungry. Amount of fat in stools is gradually decreasing without cutting down the amount of fat in the milk. Patient actually smiled today.

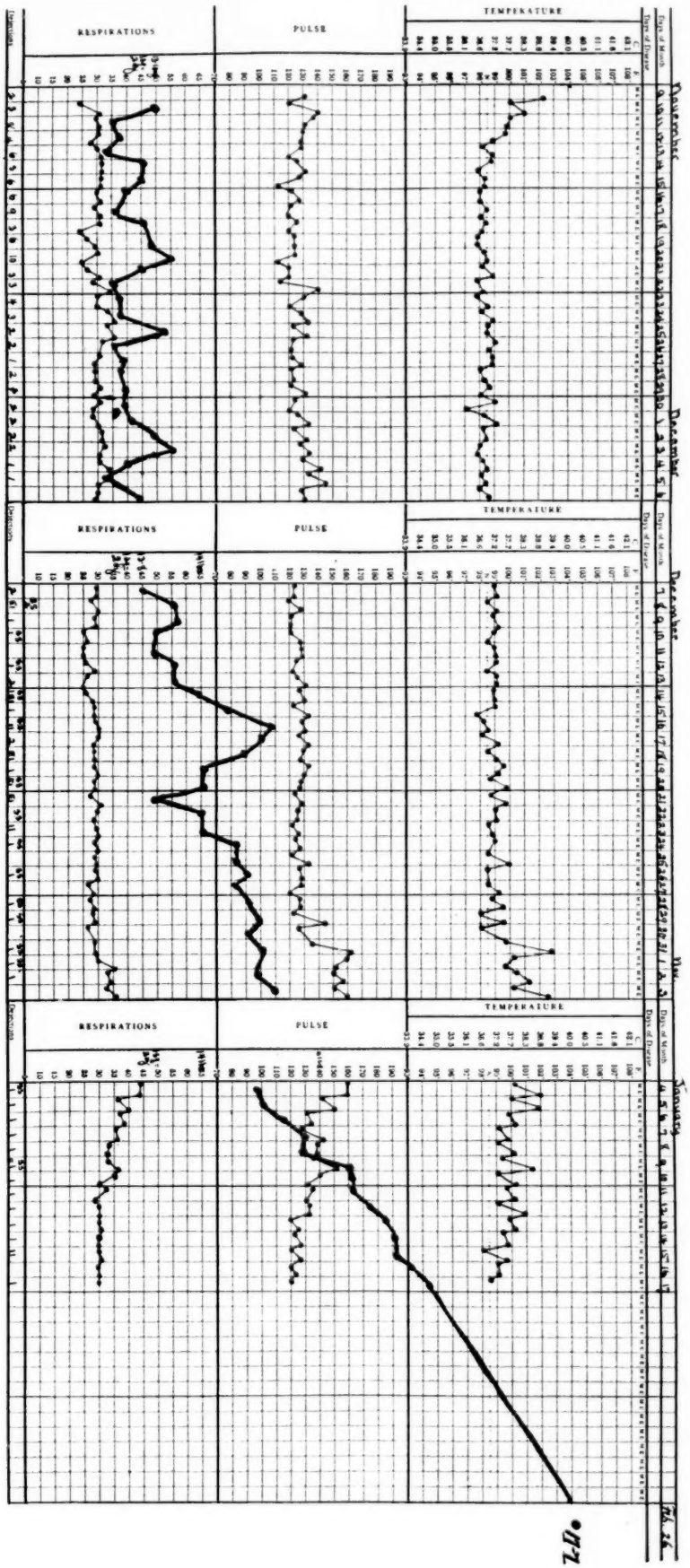
℞ Barley jelly, two tablespoonfuls, b. i. d. Zwieback, one slice b. i. d.

Feb. 22. ℞ 2.00 olive oil, 5.00 maltose, 1.75 protein, 0.75 barley starch, 5.00 lime water.

Feb. 23. Stool—light yellow, formed. Salve-like. No curds. Alkalin. Small amount of neutral fat, no fatty acids, no soap, no starch.

The net gain in three weeks since starting the homogenized olive oil malt soup mixture has been 2 pounds and 8 oz., an average gain of nearly 2 oz. a day. The disposition, appetite and general appearance of the child has improved in a corresponding degree.

CASE 2. E. D. Winchester, Mass. Seen on Aug. 31, 1914. Age, 22 months. Birth weight 7½ pounds. Present weight 15 pounds 3 oz. First child. Breast-fed for 7 weeks, *i.e.* from Oct. 28 to Dec. 19, 1913, with a gain of about one-third pound only. From Dec. 19, 1912, to May 1, 1914, was given modified milk with many different formulae, containing sugar of milk, dextri maltose, Mellen's Food, etc. The net gain in four months was about 1¾ pounds. From May 1 to Aug. 26, 1913, was nursed by a wet nurse with a gain of 7 pounds. An attempt to introduce broth and cereals



CASE II.

at this time (10 months) resulted in a sharp intestinal indigestion with the loss of one-half pound in weight. For the remainder of the year, breast milk only was given and the baby reached her maximum weight of 18 pounds 14 ozs. at 12½ months.

The history of the feeding in the second year was one of unsuccessful attempts at weaning, resulting in an irregular but, on the whole, persistent loss of weight, until at the age of two years the weight had dropped to 13 pounds 3 ozs. The appearance was then that of a child mentally bright, but extremely emaciated and without signs of any organic disease. The von Pirquet reaction was negative. The stools were large in amount, of foul odor, with much free fat, fatty acids and soaps. During the second year, all the resources of several experienced pediatrists had been tried and types of feeding adapted to suit various theories which were held as to the cause of the indigestion and malnutrition. These included skimmed milk and fat-free malt soup mixtures, low fat malt soup mixtures, whole milk, goat's milk, and one period of six weeks on a general infant diet, without any milk. The results were much the same inasmuch as temporary periods of gains in weight would be followed by attacks of intestinal indigestion with rapid loss of weight, generally to a new low point.

On November 26 I first tried an homogenized milk with 2.00 fat (cow's), 5.00 maltose, 1.75 protein, 0.75 barley starch, 10% to the total mixture lime water, heated to 212°. With this was given, as before, the broth cultures of the bacillus lactic bulgaricus, and also panopepton. This resulted in a considerable improvement in appetite and a steady gain in weight of one-half pound in a week. Then came the usual "blow up," which differed from others only in that there was no marked intestinal indigestion; but the weight dropped to 13 pounds 3 ozs. again.

On Dec. 5, I used for the first time the olive oil malt soup mixture, starting with 1.00 olive oil, 5 maltose, 1.75 protein, and bicarbonate of soda, 2 grains to the ounce. In the following ten days there was rapid improvement, a gain in weight of 22 ounces, and a very striking improvement in appetite and general conditions. So ravenous in fact was the appetite, that the quantity had been increased to 56 ounces and the formula to 2.50 olive oil, 5.50 maltose, 1.75 protein, 0.75 barley starch, 2 grains bicarbonate of soda to the ounce, making 910 calories, or an energy quotient of 179. Then began a period of weight loss lasting for 5 days and reducing the weight to 13 pounds and 9 ozs. Whether this interesting decline was due to excessive feeding or to some disturbance in salt metabolism, brought about by the considerable amount of bicarbonate of soda (2 grains to the ounce) used during the period from Dec. 5 to Dec. 21, is difficult to determine. There was no loss of appetite or intestinal disturbance during this period of declining weight, but the stools showed a slight excess of soap and fatty acids. On Dec. 19, the olive oil was reduced to 1.50%, and on Dec. 20, the soda bicarbonate was omitted, lime water (5%) substituted and the homogenized milk, heated to 212° F. On Dec 21, immediately began a second period of gain in weight and in general condition, which has steadily progressed, in spite of a ten-day febrile attack with bronchitis. From Dec. 21 to Feb. 26 (67 days) the net gain has been 3 pounds and 14 ounces, or practically an ounce a day, on an average. The food has been increased gradually to 2.50 olive oil, 5.50 maltose, 2.50 protein, 0.75 barley starch. Both lime water and heat have been omitted. The stools are normal in appearance, showing no free fat, fatty acids, nor soaps since Jan. 2, 1915. The tolerance for fats and carbohydrates has steadily increased. Cereal jellies, broths and Zwieback have been added to the diet without precipitating a digestive crisis, and the whole appearance is one of rapid and permanent gain in disposition, strength and weight.

These results in the face of twelve months' steady decline under carefully-directed feeding by competent pediatrists, prove beyond any doubt the practicability of olive oil malt soup mixtures in certan selected, difficult cases of feeding. A wide field is open to determine their indications and limitations.

LUETIC BURSOPATHY OF VERNEUIL: REPORT OF A CASE OF THE CONGENITAL TYPE.*

BY WM. PEARCE COUES, M.D., BOSTON.

UP to the time of Churchman's[1] classic article on this subject in 1909, the study of syphilis of the bursae had received but scant attention in America, though it had been written of in France, and had been recognized as of uncommon occurrence. The British writers on syphilis were silent on the subject, as Churchman points out in his article. Richet's classic early monograph on the clinical features of specific arthropathies does not mention specific bursitis. The elder Keys[2] was the first to call attention to the subject in America, though his article did not receive the attention it deserved, in making the condition generally known. He does not mention the possibility of specific bursitis in congenital syphilis. It was to Verneuil[3] that the credit belongs of first describing the conditions of specific bursitis. A few words concerning him are of interest in this connection.

Aristides Auguste Stanislos Verneuil was born in Paris in 1823 and died at Maison Lafite in 1895. He studied medicine in Paris and was an intern of the Paris hospitals. He was appointed assistant in anatomy in 1848, became *aggrégé* in 1853, and was professor of pathology in 1858. Some of his important contributions were Investigations Concerning the Movements of the Heart, in 1852, Anatomy and Physiology of the Venous System in 1853. Verneuil studied the etiology of tetanus and his experimental and clinical studies of tuberculosis were the means of causing the first Congress on Tuberculosis, which was held in Paris in 1888. Among his shorter but important contributions were articles on anthrax of the lip and of the mucous membranes, resection of the hip, and separation of the lower epiphysis of the femur. It does not seem strange

* Read before the meeting of the New England Pediatric Society on Feb. 26, 1915.

that such an acute observer and physician of such broad knowledge should be the one to give bursal syphilis its first definite description.

A few words concerning syphilis of the bursae as a whole, before considering the congenital type of the disease, must be written to give us a clear understanding of the subject. Churchman's case was the only one he was able to find had been observed in the Johns Hopkins Hospital up to 1909. Keys had previously recorded twelve cases. The most common sites of syphilitic bursitis are the elbow, wrist, ankle and knees. The subcutaneous retro-olecranal and sub-aponeurotic retro-olecranal bursae are those to be considered in the recorded case. Churchman has graphically described the condition as follows:—

"The picture then is one of an indolent affection of the bursae. . . The disease is quite independent of syphilitic arthritis, the bursae involved being oftenest those unconnected with the joints" (as in the reported case). "The bursae involved are those most exposed to trauma. But trauma only determines the site which the disease will occupy. . . Specific treatment leads to a prompt and permanent cure. In view of the marked indolence of the condition, and its great similarity to the arthropathies of syphilis, it should be spoken of as a luetic bursopathy of Verneuil." A perusal of the literature on the subject of bursitis since Churchman's paper in 1909 shows that very little that is definite has been added to his masterly article.

SYPHILIS OF THE BURSAE IN CONGENITAL SYPHILIS.

No attention has been called to this subject, though, as Churchman says, there are intimations that the disease exists. Modern works on bones and points are silent on the subject. This is strange, because, as Churchman again points out, congenital syphilis causes in the joints a condition clinically exactly like luetic bursopathy of acquired syphilis (Clutton's[4] Disease), or symmetrical synovitis of the knees, familiarly known in England as "Clutton's knees." In the eleven cases reported by this author, no mention of the bursae was made. It seems that if they had been involved, they would not have escaped his remark. Diard,[5] in reporting fifty cases of gumma in congenital syphilis, made no mention of the bursae, but two of his cases are worthy of note. The first, a case of Fournier's at the St. Louis Hospital, a girl of 25, with indubitable congenital syphilis, had developed at the age of 18 a gumma on the left shoulder, destroying part of the deltoid. The lesion partly healed, but later recurred in situ. From our present knowledge of bursal syphilis, it is certainly a possibility that this might have started in the sub-deltoid bursa. Leloir[6] and Perrin (*Annales des Dermat.*, 1883) reported a case of a patient with a family history of lues. At 14 keratitis developed; at 16 there was a swelling in the right popliteal space as large as a walnut, not painful and sharply defined, which was not adherent to the skin. A bursa might well be the site of this infection. Such indefinite references as the above are all that one finds in the literature.

REPORT OF CASE.

A. H., 13 years of age, was seen at the surgical clinic of the Boston Dispensary, Oct. 28, 1913. The family history obtained at a later date was as follows: Mother living and well; father, who is an actor, not living with the family; one sister and one brother living; the brother has a scar of an old keratitis on the right eye; both the other children small and delicate looking. Patient has had the chicken-pox and measles; no other diseases; never robust; "always something the matter." Last year fractured a toe; was treated for it in the surgical clinic. In August trouble with the right elbow after a fall; there was swelling, disability, which persisted for a time, and then disappeared almost entirely, and then became worse again after the present fall on the elbow.

Present Illness. On Oct. 27 he fell on the same arm while playing; has had considerable pain and disability in the elbow since. Examination showed a fairly well-developed and nourished boy, rather undersized; no obvious signs of inherited syphilis. The right elbow was swollen, particularly posteriorly over the olecranon where there was circumscribed fluid (olecranon bursa). There was some tenderness over the external condyle. The motions of the elbow were limited and painful. At a later examination, two small pieces of loose bone were felt through the fluid of the olecranon bursa; fixation with internal angular splint and sling. From the tenderness in the external condyle region it was at first supposed that there was a separation of this epiphysis or fracture. Radiographs, however, showed the lower epiphysis of the humerus to be normal. Two small pieces of bone were seen over the olecranon region. Nov. 25, getting on fairly well; but fluid persists, an indolent olecranon bursitis.

Extension and flexion much limited, apparently by the fluid in the bursae. No improvement having been made, five weeks after the last injury, operation was done. Shortly before this time, it was noticed that the child fainted at every examination and change of splint. Consultation with the children's medical department; cardiac dilatation and mitral insufficiency was diagnosed. The diagnosis of probable specific myocarditis was later made. Shin bones were very tender to pressure. X-rays of the tibiae showed a slight but definite periostitis. Wassermann negative.

Operation at the Children's Hospital, Boston Dispensary.

On account of the heart condition I opened the bursa under cocaine. A gummy, honey-like material was evacuated, with a small amount of pus. Two small, worm-eaten fragments of bone were removed from the cavity, which did not connect with the elbow joint. The process was found not to be in the joint, but definitely restricted to the bursae, the motions being limited by pressure from the fluid. Incision drained and partly sutured. The slightly blood-tinged, thick, gummy material, together with the pieces of bone, were sent to the City Hospital for examination; but, unfortunately,

the specimen was not properly preserved, and did not reach the hospital in a state fit for use. The larger piece of bone appeared considerably worm-eaten, like parts of a skull attacked by specific disease—the so-called "crâne en vermulaire." The bursae effected were the olecranon bursae. The process did not extend around to the front of the elbow joint. The wound did not do well. The condition was unsatisfactory, until specific treatment, local and general, was given, when there was magical improvement and the elbow returned to normal in a short time. The case was followed for about six months. There was no return of the fluid and the function of the arm was perfect. The heart condition, which was severe, also improved step by step with the elbow. The child was seen in January, 1915. There is no trouble with the arm; the general health is very good.

CONCLUSION.

There are two forms of gummatous bursitis, which may exist in congenital as in acquired syphilis, one by extension of specific disease from neighboring parts, the bones and joints, and the other class, to which the reported case belongs, primary in the bursa itself. Syphilis of the bursae is probably often unrecognized.

The disease must be differentiated from subperiosteal abscess near the joints (specific osteomyelitis) and from congenital specific arthropathies, such as Clutton's disease. Radiographs will be of great aid in differentiating this trouble from true specific bone disease.

The Wassermann test,—contrary to the general idea that it is 100% positive in congenital syphilis,—may be negative. An x-ray of the shin bones should always be taken (lateral view), when there is a question of specific bursitis, as well as a Wassermann. The x-ray will often give the more valuable information of the two. Traumatism brings the condition to activity.

An indolent bursitis in a child, particularly in such localities as the elbow or knees, with or without traumatism, and with or without obvious signs of congenital specific disease, should arouse suspicion that we are dealing with a luetic bursopathy of Verneuil, and lead to further study of the case, with this in view.

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SOME NEW SYMPTOMS IN AMAUROTIC FAMILY IDIOCY.*

BY ISADOR H. CORIAT, M.D., BOSTON,

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THE investigations of the last few years on amaurotic family idiocy have been so thorough that its clinical symptoms and its pathology are probably better known than any other organic brain disease of childhood. I wish, however, to call attention to some phenomena of the disease, which have either been completely overlooked or only briefly described. A reference to some of these phenomena had already been given in a previous communication on the disease, and it was only after further study that their importance was fully recognized. These symptoms may be described as follows:—

Explosive Laughter. This symptom was noticed in three cases. In two of these, the mental deterioration was marked. In the first case the symptom appeared about seventeen months after the onset of the disease, in the second case it began as one of the initial symptoms and ceased about ten months later, at which time the child was taken ill with scarlet fever. In the third case it was noticed about six months after the mental dullness first appeared. Whether this explosive laughter is a sign of the mental deterioration, as sometimes occurs in multiple sclerosis or dementia praecox, or due to some thalamic lesion, is impossible to definitely state at present.

Hydrocephalus. This was present in one of my cases, and in one case each reported by Huysmans and Sachs and Strauss.

Bulbar Symptoms. This was present in one case and was shown by drooling of saliva, choking spells, difficulty of swallowing and attacks of apnoea. This child died suddenly from bulbar paralysis.

Nystagmus. Constant lateral and rotary nystagmus was present in three cases, in one of which it persisted during the entire course of the disease.

Hypotonia. In two cases there was a marked flaccidity of the limbs, resembling the condition seen in amyotonia congenita (Oppenheim). Attention was first called to this symptom in amaurotic family idiocy by Kowarski. in some cases reported from Wilna, Russia.

Abnormal Reflex Phenomena. Increased reflex reactions to sound and touch are among the most interesting phenomena of this disease. The unusual sensitiveness to sound (hyper-acuisis), which is so characteristic, has long been known and appears to be present in nearly all cases, at least in the early stages, although it may disappear with the increasing mental weakness. This increased sensitiveness to sounds in organic

* Read before the meeting of the New England Pediatric Society on Feb. 26, 1915.

brain diseases was first described by Oppenheim in cases of spastic diplegia, and in some instances it was so marked that even slight noises would cause asphyxia and loss of consciousness. In one of my cases of amaurotic family idiocy in which spastic phenomena were present, this greatly increased sensitiveness to sounds was present in so high a degree that the child would twitch the entire body, the limbs would stiffen and it would show great difficulty in breathing. Another abnormal reflex phenomenon, one which I have not seen hitherto described, was an increased sensitiveness to light or to tactile stimuli. Under these conditions, if the child were touched lightly with the finger on any part of the body, or, as in testing the pupillary reflex, if an electric pocket lamp were flashed suddenly into the eyes, there would follow a sudden muscular starting or twitching of the entire body. This phenomenon strongly resembles the condition seen in a frog poisoned with strychnine and in some respects, also, is like the increased reflex excitability to tactile and acoustic stimuli of decerebrate animals.

Other abnormal reflex phenomena are observed in this disease. For instance, plantar stimulation may cause a tremor of the stimulated leg or a rhythmical contraction of the quadriceps muscle, both of which may be of longer duration than the stimulus itself. A contralateral knee jerk reflex has also been observed, and like the plantar phenomenon, this consists of a rhythmical contraction of the opposite quadriceps and is of longer duration than the initial reflex itself. In one case an attempt at ankle clonus was unsuccessful in eliciting this reflex, but produced instead a rhythmical contraction of the opposite quadriceps muscle, whose duration again outlasted the length of the attempt to produce the clonus. At no time have contralateral Oppenheim or Babinski reflexes been observed. In one case, in which the pupils were unequal, there could be demonstrated a unilateral paradoxical pupillary reaction.

The explanation of these abnormal reflex signs is rather difficult. The phenomena are probably irradiative and show that certain inhibitions in the receptive mechanisms of the central nervous system are at fault. This is easily understood by the widespread nature of the disease and the involvement of nearly all the cells of the central nervous system. The contralateral reflexes and the quadriceps contraction on plantar stimulation are probably caused by an irradiation from the pyramidal tract, since at all levels fibres from this tract bend from their longitudinal course to a more or less horizontal one and by the white commissure reach the opposite side of the spinal cord and pass into the anterior horn.

The prolongation of the reflex discharge after the initial external stimulus (as seen in the knee jerks, ankle clonus and plantar reflex), probably takes place through this irradiation, in which a larger number of motor elements are thrown into activity than would normally be the case. This irradiation of reflexes thus corresponds to the causes of irradiation in long spinal reflexes, as shown by Pflüger's second law. The increased tactile and acoustic reflex signs, leading to widespread involvement of the muscles in various parts of the body, likewise finds its most satisfactory explanation on the basis of pathological irradiation. Stimuli reach the brain through the peripheral sensory neurones of touch, sight and hearing, become irradiated to the motor centres and strike these with a proportionately greater force. This takes place because the widespread cellular nature of the disease with the mechanical destruction of the neurofibrils removes certain inhibitions which normally exist in the central nervous system, somewhat like the action of strychnine and consequently the amaurotic idiot reacts to stimuli like a strychninized animal.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

MEETING OF FEBRUARY 26, 1915, HELD AT THE BOSTON MEDICAL LIBRARY.

The Vice-president, DR. E. F. CURRY of Fall River, Mass., in the chair.

The following papers were read:

TYPHOID FEVER IN CHILDREN.

By DR. KARLTON G. PERCY, Boston.*

HOMOGENIZED MILK. ITS POSSIBLE USES IN INFANT FEEDING.[1]

By DR. MAYNARD LADD, Boston.

LUETIC BURSOPATHY OF VERNEUIL. REPORT OF A CASE. CONGENITAL TYPE.

By DR. WILLIAM P. COUES, Boston.

SOME NEW SYMPTOMS IN AMAUROTIC FAMILY IDIOCY.[2]

By DR. ISADOR E. CORIAT, Boston.

DISCUSSION.

DR. MAYNARD LADD: (Dr. Percy's paper.) I think that no one who has not made a study of the statistics of hospital cases can realize the enormous

* Dr. Percy's paper will appear in a later issue of the JOURNAL.
[1] See JOURNAL, p. 13. [2] See JOURNAL, p. 18. [3] See JOURNAL, p. 20.

amount of work which has been done in a paper of this sort. Most of the conclusions are in harmony with the general statistical cases. The very low percentage of mortality is, I think, one of the most interesting points and is worthy of special note. Credit for this should be given to the nursing, as no special drug treatment has been used in these cases.

DR. J. L. MORSE: I also want to call attention to the amount of labor which Dr. Percy's paper represents. I once analyzed a series of 284 cases from the City Hospital records, so that I can probably appreciate it better than anybody else here. As I remember, my figures were not very different from those of Dr. Percy at the Children's Hospital. I think that the mortality was somewhat higher. The point which surprised me more than anything else in his results was the relatively low frequency of bronchitis. I should say off-hand that it was more common than it seemed to be in Dr. Percy's cases.

DR. PERCY, in closing: In answer to the question of ileo-colitis, one infant came in who had typhoid and also an ileo-colitis. It ran the usual course of typhoid and was discharged well of the typhoid and the ileo-colitis. Otherwise in this series, in which we have had but few infants, we have had but one other case which could be considered as ileo-colitis and not typhoid. This child was one I reported in my mortality statistics with positive Widal, low white count, and death from pneumonia, otitis, ileo-colitis and toxemia on the thirty-ninth day.

DR. R. M. SMITH: I would like to ask Dr. Ladd if there has been any attempt to finely divide the fat globules in any other mixture than milk?

DR. MAYNARD LADD (replying to Dr. Smith): You can homogenize oils with a barley water or whey mixture perfectly well. In fact you can get the emulsion in almost any kind of a mixture, but the permanency of the emulsion depends a good deal upon the medium you use. Casein forms one of the best media for binding together the fat globules.

DR. F. B. TALBOT: I have been very much interested in Dr. Ladd's paper and am glad to know about anything that is a possible help in some of these very difficult feeding cases, especially in infants over one year old who have a fat or a starch idiosyncrasy, and I would like to ask Dr. Ladd whether, in the process of manufacture of this homogenized milk, where the pressure of 3000 to 5000 pounds is used, that produces heat enough to cause actual sterilization, and whether that is the reason why milk lasts for several months, and whether that is the reason that the curd does not precipitate in the ordinary way that cows' milk curd does?

DR. MAYNARD LADD (replying to Dr. Talbot): There are many things about this process that I do not yet know. I have not found out the maximum temperature to which the milk rises in going through the machine. The temperature of the milk is raised somewhat, but whether it reaches a point as high as 145° F. I do not know. When it comes out finally, it is not as high as that. I should say not more than 110° F. or 115° F. It may be that the heat generated in process of homogenization has something to do with its better keeping qualities, or it may be due, as one chemist has said, to the even distribution of the fat throughout the milk, inhibiting the growth of organisms which seem to thrive in cream, in preference to skimmed milk. As to the effect upon the coagulation, the minute subdivision of the fat would keep the masses of casein which are formed by precipitation of the rennin from coalescing into hard curds.

DR. CORIAT (closing remarks): I have nothing further to add excepting that this paper is one of a series of a few which I have been working on for several years in a research in amaurotic family idiocy, and I think my theory of the peculiar muscular startling to different stimuli is well borne out by the pathology of the disease.

Book Reviews.

Selected Addresses. By JAMES TYSON, M.D., LL.D., Professor of Medicine Emeritus, University of Pennsylvania. Philadelphia: P. Blakiston's Son and Company. 1914.

This volume consists of a series of eighteen republished addresses on subjects relating to medicine, education, biography and travel, made by the author on various public occasions during the course of his prominent professional career, beginning with his oration at Haverford College in 1884 on "The Requirements of a Modern College Education," and concluding with his remarks at the dinner given him by his friends on his retirement in 1910 from the chair of medicine at Philadelphia. All are written in the author's most attractive literary style and are replete with the growing richness of wisdom and experience. Volumes of this sort, which preserve the essence of a writer's personality for the benefit of his successors, should be most warmly and gratefully received by the medical profession to whom they are dedicated.

The Balneo-Gymnastic Treatment of Chronic Diseases of the Heart. By PROFESSOR THEODOR SCHOTT. Philadelphia: P. Blakiston's Son and Company. 1914.

This volume is a short treatise based on the author's personal experience in the hydrotherapeutic and gymnastic treatment of chronic cardiac affections at Bad Nauheim, Germany. The system employed has been developed by himself and his brother, the late Dr. August Schott. The work is admirably illustrated with 87 figures, including 41 full-page gymnastic poses. In the foreword by Dr. James M. Anders of Philadelphia, a special comment is made upon the recent development of balneo-gymnastic therapeutics, both in Germany and in America, and on their great value in the treatment of certain cardiac conditions. The excellent translation of this monograph is by Dr. S. Lewis Ziegler of Philadelphia.

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AMENDMENT TO THE MEDICAL REGISTRATION LAW.

FROM time to time during the past year we have noted the progress of the attempted legislation in Massachusetts to regulate the methods of registration of physicians in this Commonwealth, and in another column of this issue we publish the complete text of the amendment recently adopted, which at last secures the desired regulation.

After an almost yearly attempt, covering a period of about twenty years, the Board of Registration in Medicine has just secured an amendment to the medical registration law, limiting the examination for registration to applicants who have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine.

Massachusetts is almost the last state in the Union to adopt such a restrictive measure, but this amendment to the law finally places it in the progressive lines with other states. The legislation was effected only by a struggle between the two branches of the Legislature, lasting through the entire session.

The bill was first passed by the House after much opposition; rejected by the Senate, but on reconsideration was amended; the House refused to concur with the Senate in the passage of the bill in its amended form, and substituted the original bill in place of the amendment. A conference committee from the House and Senate was then appointed, which recommended the passage of the bill, which was finally passed on May 28, and signed by the Governor on the same day.

All efforts of the Board would have been unavailing without the hearty coöperation of Drs. Nickerson and Frothingham of the House, and Dr. Clark of the Senate, and the persistent, determined, and concentrated effort of Dr. A. K. Stone, secretary of the Committee on State and National Legislation. As a result physicians all over the state rallied to the support of this measure, and did efficient work.

This victory will rid the state of applicants who either fail to pass their examinations for graduation from medical schools, or who leave college under the false impression that a degree is of small importance in comparison with a certificate of registration. The restriction will also put a stop to the past method of one medical school which has made the graduation of its students dependent upon their ability first to pass the Massachusetts Board.

THE DOUBLE ROLE OF CHLORINE IN WAR.

WHEN the history of the present war is written, not the least interesting feature will be the part played in it by medical science. The aspects of the conflict presented to the profession are the sanitary problems involved in the herding together of vast quantities of men, the surgical cases presenting themselves constantly, especially after an engagement, and the hygienic and dietetic questions arising naturally in the

course of a long campaign. Lately, too, the opposing forces have had recourse to what might be termed chemical weapons in the form of asphyxiating gases. Probably the most widely used and the most deadly of these is chlorine.

In point of fact this gas might well be called the Dr. Jekyll and Mr. Hyde of war. It came into prominence during the early part of the conflict as an agent for the sterilization of drinking water. It has undoubtedly been the means of preserving many thousands of soldiers from intestinal disturbances of various kinds. Dropping its habit of an angel of mercy, it now appears in the shape of a demon of destruction.

Several methods are in use in the armies for the preparation of drinking water by the addition of chlorine, but they do not differ in essentials. One part of chlorine is added to from 500,000 to 7,000,000 parts of water, depending on the quality of the latter. The principle involved is the well known power of chlorine to destroy bacteria. The water is prepared by filtering when this is practicable, which is seldom the case in the field. If it is not, then alum is used, which will precipitate most of the organic material which would otherwise vitiate the chlorine. The chlorine is prepared in the usual way and acts upon the water while in its nascent state, thus being rendered more powerful. After treatment there should be an excess of chlorine, which is shown by testing with starch and iodides. Contrary to what might be expected, the resultant drinking water does not taste of the chlorine by the time it is ready for use, at least officers in the field testify that they have had no complaints on this score.

The more nefarious activities of chlorine first came to notice the latter part of April, this year, when the report was circulated that the Germans were using an asphyxiating gas, greenish in color and somewhat heavier than air. This gas was allowed to drift toward the attacking forces when the wind was favorable, or else contained in bombs which were propelled towards the enemy. Judging by the physical appearance of the gas, the symptoms of the men who breathed it and the precautions which were observed to have been taken by the German soldiers who were captured or found dead, the gas used was almost certainly chlorine. The pathological process caused by its inhalation is a severe, purulent bronchitis, and death occurs from asphyxia. In autopsies of such cases edema of the lungs has been a constant finding.

TREATMENT VERSUS CLIMATE IN TUBERCULOSIS.

THERE are two broad classes into which the practitioner usually divides his cases of incipient tuberculosis, either consciously or unconsciously. These are the well-to-do cases and the others. That is, those who can afford to change to a healthier climate and those who cannot.

Having decided after due inquiry that his patient can afford to seek the health belt, the physician should not consider his whole duty done when he advises him to make this change. He should be at some pains to impress upon the mind of the prospective health seeker the fact that the climate itself is not going to cure him unless he gives it every chance. For instance, although it seems scarcely credible, many patients are at considerable pains and expense to transfer their Lares and Penates to the west or southwest and then try to reap the benefits of the climate by taking a walk of an hour or two a day and sleeping with their windows open! Whatever Spartan flavor this may have to the patient, he should be told plainly that he might almost as well stay at home as dilute his treatment thus. The only way to use a climate is to soak it up, to get out in it, every day all day and every night all night. At the same time the other essentials of treatment, rest, diet and medical attention, should be employed.

In the United States Public Health Report for April 23, Dr. Ernest A. Sweet emphasizes this point in the course of an exhaustive report on conditions in Texas and New Mexico. Among other things he says, "The average sufferer comes to the West with the sole idea that the climate will cure him, that all he needs to do is to take up his residence in that particular locality, and that nature will somehow perform a miracle." This sort of invalid has never heard of fresh air, has made no provision for rest and may remain there a year, running a fever all the time, without consulting a doctor.

In fact, it seems to be the general opinion of those who have studied this subject that care without climate is better than climate without care, and this should be impressed on the second class of patients, those who for financial reasons are not able to change their residence. If patients are brought to understand that careful and intelligent attention to hygiene is more important than the climate they happen to live in, there would be fewer cases of depression due to brooding over inability to seek another climate.

EUROPEAN WAR SURGERY.

The topics in surgery and medicine arising as a result of the events of the present European War are not only many, but of exceptional interest on account of the unusual character of the problems which they present. From time to time during the past six months the Journal has published various contributions from its special correspondents in the European countries, presenting different aspects of the situation there existing from the immediate standpoint of those actually engaged. In the present issue of the Journal we are glad to publish as leading articles two more extended papers based on the work and experience of the American Ambulance Hospital at Neuilly. The first, by the French surgeon, Dr. Gros, discusses particularly the problems of transportation and presents interesting conclusions with regard to the relative merits of various types of motor ambulances and of different methods of handling and caring for the wounded. The second paper, by Dr. Osgood, records the result of his recent experience in dealing with the problems presented among wounded soldiers in his special field of orthopedics. Though dealing with widely diverse subjects, these two articles illustrate the important fact that mechanical and technical skill, inventiveness and judgment, whether in dealing with the motor problems of transportation or with the static problems of apparatus and its adjustment, are essentials in securing the highest service and efficiency. It is our hope in future numbers of the Journal, to present other expert articles dealing similarly with special aspects of the various problems presented in European war surgery.

MEDICAL NOTES.

Prevalence of Meningitis, Poliomyelitis, and Other Diseases in April.—The weekly report of the United States Public Health Service for June 4, 1915, states that during the month of April, 1915, ten cases of cerebrospinal meningitis, three of poliomyelitis, 478 of smallpox and 67 of typhoid fever were reported in Indiana. During the same month there were in Texas, 386 cases of smallpox and 60 of typhoid; and in the state of Mississippi seven cases of cerebrospinal meningitis, 6078 cases of malaria, 1299 of pellagra, eight of poliomyelitis, 455 of smallpox and 173 of typhoid fever.

British Birthday Honors for Physicians.—Among the British physicians recognized for distinction in the annual award of honors upon the occasion of the King's birthday are Dr. James Mackenzie and Dr. Frederick Needham, who both received the honor of knighthood. Sir James Mackenzie has been distinguished for the great scientific and practical value of his investigations of cardiac physiology and pathology; and Sir Frederick Needham, a well known expert in psychiatry, has rendered many years of able service to the commissioners of the board of control and to the British Lunacy Commission.

American Society of Tropical Medicine.—The annual meeting of the American Society of Tropical Medicine was held in San Francisco on June 15. The following officers were elected for the ensuing year: President, Dr. Milton J. Rosenau, Boston; first vice-president, Dr. Abiley K. Ashford, San Juan; second vice-president, Dr. C. C. Bass, New Orleans; secretary, Dr. John M. Swan, Rochester, N. Y.

National Board of Medical Examiners.—The plan adopted by the American Medical Association at its recent 66th annual meeting in San Francisco, to provide a National Board of Medical Examiners, is reaching its fulfillment. It is intended that this board shall provide an examination which will entitle those applicants who pass it to practice medicine in any state in the union, that is, that states now requiring examination of applicants for licenses to practice medicine will accept the certificate of the National Board as sufficient. The inconvenience now experienced by physicians in going from one state to another to practice their profession may thereby be avoided. Up to the present time the following men have been appointed to serve on such a board: Admiral William C. Braisted, Surgeon-General, U. S. Navy, chairman; Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army; Gen. Rupert Blue, Surgeon-General, U.S. Public Health Service; Col. Louis A. LaGarde, U. S. Army, treasurer; Asst. Surg.-Gen. W. C. Rucker, U. S. Public Health Service; Commander E. R. Stitt, U. S. Navy; Dr. Herbert Harlan, representing the Confederation of State Boards of Examiners; Dr. Isidore Dyer, representing the Association of American Medical Colleges; Dr. E. Wyllys Andrews, representing the American College of Surgeons; Dr. Lewis B. Wilson, representing the Mayo Foundation; Dr. Victor C. Vaughan, representing the American Medical Association; Dr. William L. Rodman, secretary, representing the American Medical Association.

Dr. Alexander R. Craig of Chicago, secretary of the Association, reports that its membership has increased from 74,235 in 1914 to 76,020 in 1915.

PROHIBITION OF BORIC ACID AS A FOOD PRESERVATIVE.—Report from Washington, D. C., states that on June 21 the United States Supreme Court upheld the constitutionality of the Illinois Pure Food Law which prohibits the sale of a food preservative containing boric acid. Justice Hughes in his decision, stated that the validity of the law must be upheld unless it were shown beyond doubt that boric acid as a food preservative is not unwholesome. This, the court held, had not been done.

MEDICAL EDUCATION IN CHINA.—Report from Baltimore states that Dr. William H. Welch left that city on June 30 for San Francisco, whence he will sail on August 1 to China with Dr. Simon Flexner of New York and Dr. Wallace Buttrick, director of the China medical board and secretary of the general education board. The board composed by these physicians has been established by the Rockefeller Foundation to carry out the numerous recommendations of a special commission, which last year made an elaborate study of the conditions of public health and medical education in China. Its purpose is to systematize medical education in that country and to establish throughout it a series of American hospitals to be administered by American physicians and surgeons. To this end the Foundation has recently purchased for $200,000 from the London Missionary Society, the Union Medical College at Pekin, and the first action of the China Medical Board will be to take over this institution and develop its work.

"Independent of the acquisition of the Pekin College, which the Foundation recognizes as its most important activity, the China Medical Board has made an appropriation of $16,000 a year for five years to the Yale Medical College at Chang Sha, and has appropriated $16,000 for one year to the Harvard Medical School at Shanghai, and also has appropriated similar sums to several missionary hospitals."

SUIT ON BEHALF OF TYPHOID VICTIMS.—In various issues of the JOURNAL during the fall and winter of 1913-14 we noted from time to time a serious epidemic of typhoid fever which arose in Rhode Island as the result of an excursion of a party aboard the steamer *Rochester* to the celebration of the Perry centennial at Buffalo, N, Y., in September, 1913. On June 18, 1915, a libel suit for $265,000 damages was entered on behalf of forty-five residents of Rhode Island, victims of this epidemic, against the navigation company owning the *Rochester*. In this suit the company is charged with negligence as a result of which the epidemic occurred. At the time it was considered that the infection was due to impure drinking water provided aboard the steamer.

EUROPEAN WAR NOTES.—In the issue of the JOURNAL for June 17 we noted the critical condition of the King of Greece and the operation which was performed upon him for empyema. It has recently been reported that Dr. Richard P. Strong of the United States Public Health Service, now in Serbia, in charge of the American Red Cross typhus fever commission, was also summoned to see the king in consultation. It has recently been announced from Amsterdam by way of London that the king's other two consultants, Dr. Friedrich Kraus of Berlin, and Baron von Eiselsberg of Vienna, left Athens on June 19 giving a favorable prognosis of his condition.

The weekly report of the United States Public Health Service for June 18 states that during the week ended April 24, 1915, there were 347 cases of typhus fever in Austria-Hungary, chiefly among soldiers, prisoners and persons from Galicia. In Germany during the week ended May 8 there were 61 cases of the disease among German soldiers. Typhus is also reported as present among Russian prisoners in eleven districts and in Saxony.

On June 26, the totals of the two principal New England relief funds for the European war reached the following amounts:—

Belgian Fund	$264,468.26
Red Cross Fund	135,275.16

BOSTON AND NEW ENGLAND.

BOSTON DISPENSARY CLINICS.—A change is announced in the hours during which patients may be admitted to the morning clinics at the Boston Dispensary. Hereafter the doors will be open from 8.45 to 10.30 A.M., instead of from 9 to 11.

SMALLPOX IN NEW BEDFORD.—There has been recently a slight outbreak of smallpox at New Bedford, Mass. Since May 15 there have been ten cases and three deaths from the disease. All the patients were natives of Cape Verde. Only two of them had ever been vaccinated and except in these two cases the disease was of the most virulent type, four of the cases being hemorrhagic.

AWARDS TO MASSACHUSETTS HOSPITALS.—The recently published bulletin (No. 10) of the Massachusetts State Board of Insanity announces that at the meeting of the American Medico-Psychological Association at Old Point Comfort, Va., May 11 to 14, the committee on diversional occupation of the insane announced that in 1912, 6 hospitals took part in the exhibit held by the association; in 1913, 12 hospitals; in 1914, 14 hospitals; and at the present meeting, 1915, 32 institutions were represented. Of these 32 contributing institutions, 13 were from Massachusetts, 12 of these being State institu-

tions and one a private hospital. Awards were made by the committee. Fifteen certificates were awarded to Massachusetts institutions, three each to the Taunton and McLean Hospitals, two each to the Danvers and Gardner Hospitals and one each to the Worcester, Northampton, Westborough, Boston and Grafton Hospitals.

NEED OF FUNDS FOR THE INFANTS' HOSPITAL.—In the issue of the JOURNAL for May 27, 1915, in reporting the work of the Infants' Hospital for the past year, attention was called to the need of this institution for an increased income, that the important service which it so efficiently renders to the medical and charitable work of the city should not be seriously handicapped. There are very few places with facilities for taking care of poor babies of the city. The Infants' Hospital is especially fitted for work of this character yet, because of lack of income, it has been obliged to refuse admission to an average of three babies each day. The hospital has a capacity of 65 beds and the estimated cost of running it at full capacity is $28,500 a year. With 24 beds last year the cost was $24,000. That is, an increase of one-fourth in the income will treble the work of the hospital. It is to be hoped that the generosity of its friends and well-wishers may enable it to realize its opportunities to their fullest capacity.

DR. CREEL AS BOSTON HEALTH COMMISSIONER.—In the issue of the JOURNAL for May 13 we announced the acceptance by Dr. Richard H. Creel of the United States Public Health Service of the appointment as health commissioner of the city of Boston. In the issue of the JOURNAL for June 10 we published a further statement containing a letter from Dr. Creel in which he expressed the necessity of his declining this appointment on account of his health. It is now announced (on June 21) that Dr. Creel has decided again to reconsider his action and will accept the appointment as health commissioner of the city of Boston, for one year, beginning his duties in this position today, July 1. His salary is to be $7500 a year.

TRAINING OF DENTAL NURSES.—At a meeting of the Massachusetts Dental Association in Boston on June 21, it was announced by Dr. Eugene H. Smith that during the ensuing year the Harvard Dental School will establish a course of instruction for dental nurses, since the registration of the latter has been provided for by recent legislation.

Dr. Charles F. Painter, also announced the appointment of a committee, on the part of the Tufts Dental School, to confer with a Harvard committee on the subject of courses in dental hygiene.

REPORT OF BOARD OF HEALTH OF WORCESTER, MASS.—The annual report of the Board of Health of the city of Worcester shows that for the year 1914 there were reported 349 cases of measles with 18 deaths, 313 cases of tuberculosis, 280 cases of diphtheria, 186 cases of scarlet fever with 5 deaths, 149 cases of ophthalmia neonatorum and 75 cases of typhoid fever with three deaths. The mortality rate for the year is 14.16 which is the lowest rate which the city has had during the last half century.

OPENING OF EVERETT TUBERCULOSIS HOSPITAL.—On June 18 the new tuberculosis hospital erected by the city of Everett was opened for inspection. The hospital will accommodate 24 patients and is intended to care for advanced cases and those patients in the early stages of the disease who are awaiting admission to the state sanatoria. It is stated that a total of 75 cases has been reported to the board of health of the city. Adjoining the hospital is another building to be used for the admission of patients with other communicable diseases.

HONORARY DEGREES FOR PHYSICIANS.—Among the honorary degrees conferred on graduates at the recent commencement of Yale College is that of B.Sc. on Dr. Charles Wardell Stiles of the United States Public Health Service for his work in connection with pellagra and the hookworm disease.

At the commencement of Havard College, on June 24, honorary degrees were conferred upon two physicians as follows:—

MASTER OF ARTS:

ALEXANDER HAMILTON RICE, explorer of tropical America, adventurous and hardy, who heard the wild call of nature and revealed her hiding place.

DOCTOR OF SCIENCE:

FRANK BILLINGS, physician and citizen of Chicago; powerful in his profession and his community, who has inspired medical research, improved medical administration in his own State and promoted a higher grade of medical education throughout the land.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 15, 1915: Diphtheria, 68, of which 4 were non-residents; scarlatina, 105, of which eight were non-residents; measles, 221, of which 1 was non-resident; tuberculosis, 82, of which 2 were non-residents. The death rate of the reported deaths for the week was 15.59.

MOUNT SINAI HOSPITAL.

Through the generosity of an anonymous donor, a lectureship has been established at the Mount Sinai Hospital named after the late Dr. Edward G. Janeway, who was for many years associated with the medical staff. The foundation has been created for the purpose of inviting important investigators to present the results of their work to the staff of the hospital.

Massachusetts Medical Society.

ANNUAL MEETING OF THE COUNCIL.

JUNE 8, 1915.

THE annual meeting of the council was held at the Copley-Plaza Hotel, Boston, June 8, 1915, at twelve o'clock noon. The president, Dr. Charles F. Withington, was in the chair, and the following 116 councillors present:—

BARNSTABLE,
E. E. Hawes, M.N.C.
C. W. Milliken.

BRISTOL NORTH,
W. H. Allen, V-P.
R. D. Dean.
F. A. Hubbard, M.N.C.

BRISTOL SOUTH,
C. A. Bonney, Jr., V-P.
E. F. Cody.
W. A. Dolan.
R. W. Jackson.
H. G. Wilbur, M.N.C.

ESSEX NORTH,
R. V. Baketel.
G. E. Kurth,
E. H. Noyes.

ESSEX SOUTH,
C. H. Bangs.
R. E. Bicknell.
N. P. Breed.
D. J. Finnegan.
H. K. Foster.
Butler Metzger.
J. F. O'Shea, M.N.C.
H. E. Sears.

FRANKLIN.
G. P. Twitchell, M.N.C.

HAMPDEN,
T. S. Bacon.
J. M. Birnie.
R. S. Benner.
E. L. Davis.
M. B. Hodskins.
A. G. Rice.

HAMPSHIRE.
J. S. Hitchcock.

MIDDLESEX EAST,
C. J. Allen, M.N.C
E. S. Jack.

MIDDLESEX NORTH,
G. O. Lavalee.
W. P. Lawler.
A. G. Scoboria.

MIDDLESEX SOUTH.
W. D. Swan, V-P
Albert August.
M. H. Bailey.
F. E. Bateman.
J. E. Cleaves.
C. H. Cook.
E. A. Darling.
G. W. Gay.
C. M. Hutchinson.

MIDDLESEX S. (*Continued*)
J. B. Lyons.
S. F. McKeen.
C. E. Mongan.
C. E. Prior.
Godfrey Ryder.
Joseph Stanton.
E. H. Stevens, M.N.C.
J. O. Tilton.
Julia Tolman.
C. T. Warner.
Alfred Worcester.

NORFOLK.
M. V. Pierce, V-P.
E. F. Bartol.
E. H. Brigham, Libra.
A. N. Broughton.
P. W. Carr.
H. C. Ernst, C.
E. W. Finn.
G. W. Kaan.
Bradford Kent.
Harry Linenthal.
T. J. Murphy, M.N.C.
A. P. Perry.
W. H. Robinson.
M. J. Rosenau, C.
T. M. Shay.
F. W. Sleeper.
E. P. Starbird.

NORFOLK SOUTH,
C. S. Adams.
J. C. Fraser.

PLYMOUTH.
A. A. McKeen.
Gilman Osgood.
F. J. Ripley.
F. G. Wheatley.

SUFFOLK.
E. S. Boland.
H. I. Bowditch.
G. W. W. Brewster.
E. M. Buckingham, T.
W. L. Burrage, S.
David Cheever.
H. A. Christian.
A. L. Chute.
E. A. Codman.
J. A. Cogan.
G. A. Craigin.
E. G. Cutler.
R. L. DeNormandie.
Albert Ehrenfried.
C. Frothingham, Jr.
C. M. Green, C.
W. C. Howe.
H. T. Hutchins.
Henry Jackson.
R. W. Lovett.
J. J. Minot, M.N.C.

SUFFOLK (*Continued*)
Abner Post.
Anna G. Richardson.
D. D. Scannell.
G. C. Smith.
P. M. Smith.
H. F. Vickery.
C. F. Withington, P., C.

WORCESTER.
F. H. Baker.
W. P. Bowers.
J. T. Duggan.

WORCESTER (*Continued*)
W. J. Delahanty.
David Harrower, M.N.C.
W. L. Johnson.
C. D. Wheeler.
L. F. Woodward.
S. B. Woodward, V-P.

WORCESTER NORTH,
C. E. Bigelow.
A. P. Mason.
E. A. Sawyer, M.N.C.

V-P., Vice-President *ex-officio*.
M.N.C., Member Nominating Committee.
C., Chairman of a standing committee.

The minutes of the last meeting were read and accepted.

The names of the Nominating Committee were read by the secretary, and the committee retired.

Dr. C. M. Green read the following report:

THE COMMITTEE ON MEMBERSHIP AND FINANCE makes the following recommendations:

1. That the following-named Fellows be allowed to retire, under the provisions of Chapter I Section 5, of the by-laws:

Hood, Mary Gould, of Newton Centre.
MacMillan, Andrew Louis, of Hanover.

2. That the following-named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

Albert, Lionel Louis, of Central Falls, Rhode Island.
Cumston, Charles Greene, of Geneva, Switzerland.
Graustein, Charles Israel, of Brockton.
Mitchell, Mary Paulsell, of Warren, Pennsylvania.
Porter, William Townsend, of Dover.
Wood, Mary Anna, of Pittsfield.

3. That the following-named Fellows be allowed to change their district-membership without a change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

Alexander, Thomas Branch, of Scituate Harbor, from Plymouth to Norfolk South
Breslin, John George, of Charlestown, from Middlesex South to Suffolk.
Bryant, John, of Cohasset, from Norfolk South to Suffolk.
MacCallum, Wallace Peter, of Dorchester, from Norfolk to Suffolk.
Parks, Edward Luther, of Roxbury, from Norfolk to Suffolk.
Schirmer, Joseph Walter, of Needham, from Norfolk to Suffolk.
Smith, George Carroll, of Norfolk District, from Norfolk to Suffolk.

For the Committee on Membership and Finance,
CHARLES M. GREEN, *Chairman*.

Voted, To accept the report and adopt its recommendations.

The reports of the committees appointed at a previous meeting to consider the petitions of the following named for restoration to the privileges of fellowship were acted on favorably: F. X. Mahoney, J. A. Ceconi, E. O. Tabor, C. H. Phillips, J. J. Sullivan, R. F. Burns. Petitions of the following named to be restored to the privileges of fellowship were assigned to committees of three each: F. H. Lally, A. V. Lyon, Ada H. Tedford, S. H. Rubin.

Dr. H. C. Ernst read the following report and it was accepted by vote:

I beg to present herewith the report of your COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS for the past year.

Your delegate attended the Eleventh Annual Conference of the American Medical Association on Medical Education and the meeting of the Association of American Medical Colleges, which was closely associated with the meeting of the Federation of State Medical Boards of the United States. These meetings took place in Chicago on February 15, 16, and 17, 1915. The programs are herewith appended.

Perhaps one of the most interesting contributions was that of Dr. Henry S. Pritchett on "The Classification of Medical Schools," the full suggestion of which can be obtained only by reading the article itself. (*Journal of the American Medical Association*, Vol. lxiv, No. 12, p. 961.) The gist of it is a criticism of the methods followed and the results obtained in the classification under their headings A plus, A, B and C as published by the Council on Medical Education. The tenor of the contribution is indicated by the first paragraph and the conclusion, the former of which reads as follows:

"The desire to classify seems to be a universal human motive. In education, in politics, in society, men reach out for some form of classification that shall be definite and specific, so that every cause may have its right label, every party its true name, and every institution be included in its proper class."

Before quoting the conclusion, this question and answer furnishes further indication of the tenor of the paper:

"Can medical schools, any more than colleges, be classified into sharply divided classes? This question lies at the root of the whole matter. In reply I would say that, in my judgment, nobody is so well prepared to carry out such work as a body which represents the medical profession. Reform in medical teaching, like all other reform which is genuine, will come from within, not from without. No other group of men, in my judgment, could hope to do what the Council on Medical Education has accomplished. I believe, as I have already said, that the Council has suffered in its work by a lack of touch with the educational conditions with which it has been dealing. It can, I believe, improve its future legislation by availing itself of a closer knowledge of schools and colleges, but I question whether any group of men, however qualified, can make a hard and fast classification of medical schools which would not be open to serious criticism. In other words, the problem of classifying schools into four or five groups on such criteria as the Council has assumed seems to me practically insoluble. It has served its day and some looser form of grouping seems now desirable."

The conclusion states the matter from a very broad point of view:

"Let me say one word in regard to such criticism as I have made of the Council on Medical Education. I have spoken concerning the work of the Council with great frankness for the reason that no other course is worth following, and in the belief that progress comes only by the frank and honest expression of opinion in regard to such matters. I have such high regard for the work of the Council and for the work of its Chairman that I take a keen interest in the preservation and development of the Council's work—a work which seems to me liable to fall from its own weight if the classification proceeds along the present lines. I hope, as a layman in medicine, that it is not impertinent of me to discuss these matters, since they are primarily questions of education, and I hope also that it may be admitted that the sincerest service a friend can perform with respect to the work of the Council is to speak in a critical, and yet in a friendly way concerning those directions in which, it seems to him, the dangers lie. The interests of education in our nation are one. Education itself is one thing, from elementary school to university, and medical education in its largest and truest sense can be approached wisely only when one keeps this fact in view and regards medical education in its true perspective as a part of the whole problem of education of the American nation."

This undoubtedly was the most important of the contributions to the meeting of the Association of American Medical Colleges.

Another discussion of interest that took place was that which considered some fallacies in the arguments against full-time clinical instruction, the matter being opened by Dr. M. G. Seelig of St. Louis. It cannot be stated that the feeling of the meeting was much influenced by this discussion, but the special point in favor of the procedure is made in the observation that "those who favor the plan of full-time clinical instruction are influenced in no small part by the hope that the properly qualified clinical teacher will foster, stimulate and direct clinical research of a higher order than is commonly produced at present. To encourage scientific clinical research, therefore, the clinical teacher must be provided with an environment as favorable as that of the fundamental teacher."

The more important parts of the program of the Conference on Medical Education were made up by the report of the Committee on the Reorganization of Clinical Teaching, presented by Dr. Victor C. Vaughan; that on the University and Higher Degrees in Medicine, presented by President George E. Vincent of the University of Minnesota; and that on Courses and Degrees in Public Health Work, presented by Professor M. J. Rosenau of Boston.

The methods by which clinical teaching is to be improved is considered in the report under the following headings:

1. The provision of adequate hospital and dispensary facilities.
2. The need of an adequate financial income.
3. The readjustment of the place in the curriculum in which prescribed clinical instruction shall be begun.
4. The use of the dispensary.
5. The organization of the hospital units.
6. The utilization of students as clinical clerks in hospital wards.
7. The utilization of special and extramural hospitals.
8. In the co-ordination of departments in teaching.
9. The limiting of the practice of the clinical teachers.

And in conclusion the writer of the report says:

"Whatever may be said regarding the practicability of limiting the practice of clinical teachers, the other propositions dealt with in this paper have to do with improvements which are well within the reach of the majority of medical colleges. To construct a reasonable working standard for immediate adoption, and another, more ideal standard, for adoption sometime in the early future is the chief function of this Committee on the Reorganization of Clinical Teaching. (*Journal of the American Medical Association*, Vol. lxiv, No. 10, p. 785.)

In taking up the matter of higher degrees in medicine, President Vincent recognizes the practical difficulty encountered by those interested in this subject—that of differentiating between the requirements of graduates in medicine, who need what may be called "brushing-up" courses and those who wish to pursue a serious line of study in some specialty in medicine, which is worthy of the same recognition that is given to similar efforts leading to the higher degrees in academic departments of the universities—Ph.D., for example. It is only for these latter that the present existing higher university degrees should be considered, and whether or no it is advisable to establish and to grant degrees in specialties is a matter that is still open to serious consideration and discussion. (*Journal of the American Medical Association*, Vol. lxiv, No. 10, p. 790.)

The contribution of Professor Rosenau on Courses and Degrees in Public Health Work embodies a description of the work being carried on in Boston by the School for Health Officers, an enterprise conducted by Harvard University and the Massachusetts Institute of Technology, acting in co-operation through an Administrative Board appointed for this purpose by both institutions, and emphasizes the fact that public health work is becoming a separate profession, and that public health service, as a career, must be made an end in itself. (*Journal of the American Medical Association*, Vol. lxiv, No. 10, p. 794.)

These were the points that especially attracted the attention of your delegate at the meetings in Chicago.

So far as the work of your Committee has concerned itself with medical diplomas, it is well to say that, in accordance with the vote of the Council passed in June, 1914, "that the Committee on Medical Education and Medical Diplomas has power to recognize a medical degree coming from a not recognized medical school, presented by a candidate for Fellowship in The Massachusetts Medical Society, provided such candidate has practised in a given locality for a minimum of five years, has proved himself to be a skillful and conscientious practitioner of medicine, and is recommended by a number of his neighbors who are already Fellows of the Society," a number of holders of such degrees have been approved for examination by the Censors. The Committee has adopted the following form of vote to cover these cases:

"*Voted*: To recognize the degree of ..... of ..... for the purposes of his examination by the Censors for Fellowship in the Massachusetts Medical Society. The action of the Committee was based upon information received in letters written by Fellows of the Society endorsing .....'s professional and personal qualifications."

The Committee desires to remind the Secretaries of the District Medical Societies that the Council has vested the authority to approve holders of these non-recognized diplomas in the Committee on Medical Education and Medical Diplomas and not in the Secretaries of the District Medical Societies a.. ' that, if the Secretaries will recognize this fact and submit the credentials of applicants holding these non-recognized degrees to the Committee before allowing the holders to come up before the Censors for examination, some confusion and delay may be avoided in the future. Respectfully submitted,

HAROLD C. ERNST, *Chairman.*

Dr. A. K. Stone presented the accompanying report and it was accepted:

THE COMMITTEE ON STATE AND NATIONAL LEGISLATION respectfully reports on its activities during the year as follows:

The Committee has had a busy year. The 1914 legislature did not adjourn for nearly a month after the annual meeting of the Society, and it was a very strenuous time for the Committee, with legislative hearings and conferences regarding the reorganization of the Department of Health. The bill which finally passed the Legislature, while it was by no means the complete act which had been drawn by Dr. Rosenau and considered and amended by your Committee, nevertheless accomplished the main objects for which legislation was desired, and enabled the new department to start on a much better business basis than was possible under the previous law. Governor Walsh kept the letter of his promise made to the Society in his speech at the last annual dinner, and the Committee was frequently in conference with him until he selected Dr. Allan J. McLaughlin, of the U. S. Public Health Service, for the position of Commissioner of Health; and later, when he selected the Advisory Council, which consisted of William T. Sedgwick of the Massachusetts Institute of Technology, George C. Whipple, a sanitary engineer of Harvard, David L. Edsall, Harvard Medical School, William J. Gallivan, of Boston, Joseph E. Lamoureux, of Lowell, and Milton J. Rosenau, of the Harvard Medical School. The whole attitude of the Governor toward the reorganization of the Health Department was on the high plane of public efficiency.

Too much praise cannot be given to Dr. E. H. Bigelow, of Framingham, for his work in the Legislature, where his never-failing patience, persistence and good nature had much to do with making this legislation possible.

With the entrance of the Legislature of 1915, new work at once began. The dominant political party decided that as far as possible it would undertake no new legislation, that it would create no new commissions, that there were certain problems that must be settled, and that when these and the appropriation bills were passed, the Legislature would adjourn To a great extent this program has been adhered to. While it was easy to have undesirable legislation killed off, it was at the same time more difficult to have desirable legislation considered.

As a result of this, and because many health laws had been passed during the past few years, there were fewer measures than usual which concerned the attention of the Committee, but several of these were, nevertheless, of much importance to the medical profession.

There were about thirty measures which were considered by your Committee. Some of these were opposed either by letter or by appearing in opposition before the appropriate committee. In like manner it was voted to approve of a certain number of measures, either directly or by letters which signified the approval of the Committee to the persons who had the measures actually in charge.

The usual bills were introduced to make special provision for irregular practitioners, and one of these which was designated (as its proponents frankly acknowledged) for special legislation for one individual: a so-called Chinese doctor. This bill was pushed and fought for with a most singular determination which was a marked commentary on the grip that the irregular in medicine has upon the minds of many people.

There was the regular anti-vaccination bill, which was defeated more easily than last year. An anti-vivisection bill made its appearance and was met by the men from the medical schools most interested in this question.

One measure was aimed directly at the Massachusetts Medical Society. On petition of one John J. Tallant, a bill was introduced that all registered physicians should be eligible for membership in all chartered state medical societies. This bill was supported by a member of this Society, who was a professor in the College of Physicians and Surgeons Medical School.

The tuberculosis legislation of the state was attacked by several minor bills, early in the session. These made no headway at the time, but in the last days of the session, a more determined move was made by certain cities that wished to avoid compliance with the law. When, however, the true facts of the case were presented to the various legislative committees, they, by a resolve which was passed by both branches, referred the matter of hospital construction in the case of the smaller cities to the Department of Health, to report upon to the next Legislature. In the meantime, it is hoped that the plans already made for compliance with the law relative to hospital construction will be carried out by many cities, so that there will be only a small number of communities which will have to be arranged in groups by the Department of Health; for it seems to your Committee that this is primarily a municipal question, and rarely one that can be solved by a group hospital.

During the year, the so-called Harrison Anti-narcotic Act was passed by Congress, and went into effect on March first. Your Committee had correspondence with the senators regarding certain amend-

ments to this act which should make it less onerous in its working as far as the practitioners of medicine were concerned. Later, it was found that the State law regarding narcotics was much at variance with this act, and that it was desirable to modify the State law so as to conform to the reading of the Harrison Act. This was done with the addition of cannabis indica to the drugs which must be reported, as it was thought that there were signs that dope fiends were, under the increasing difficulties of securing opium and cocain, shifting to hashish. During the process of legislation on this anti-narcotic law, an event occurred which showed what a power the medical men have if they are really in earnest on a legislative matter. The physicians of the state received a circular from a drug firm, calling attention to a variation in the proposed law from the actual reading of the Harrison Act. It was really not an important change, although it was much better that the Harrison Act should be followed, and it was so understood at the conference which I and others had had with the committee of the Massachusetts State Pharmaceutical Society, which was directly responsible for this legislation. The statements in the circular I refer to were overdrawn as to the effect on the physicians, but the medical men became aroused and letters poured in at the State House in such numbers that the sponsors of the bill quickly saw that something must be done at once to save it; and after several hurried conferences, the bill was withdrawn from the house and amended in committee. Such is the effect of united medical action. It is one reason why our friends, the Christian Scientists, anti-vaccinationists and various irregular practitioners are more powerful than the regular profession; they appear in clamoring hordes and are opposed by the well-known small group of members of your Committee.

The Massachusetts Dental Society secured the passage of an act to revise the law relative to the practice of dentistry and they are to be congratulated on this result.

A bill for the amendment of the laws regulating the practice and registration of nurses failed to get by the Committee because the nurses and the medical men and the interested general public are not agreed as to what is desirable in the way of legislation. Therefore the legislators prefer to keep the present inadequate law until some common agreement can be reached.

The so-called Clean Milk Bill, introduced by the Central Labor Union, was a simple bill for the protection of the consumer, by placing the responsibility for the production of milk in the hands of local boards of health or the State Department. There was criticism that there was no penalty and no provision for the expenses of inspection, and in certain cases there might be a clash in authority between the local boards and the State Department of Health. This bill, amended to meet the requests of the agriculturalists, was passed, only to be vetoed by the Governor, who was influenced by the violent opposition of many dairymen who threatened to go out of business if the bill were passed, and to make the state practically dependent on out-of-state dairies in the immediate future.

Previous to this, propositions from the Governor and others to have a new commission to study the milk question, were turned down by the legislature in accordance with the caucus vote that there should be no new commissions this year. It may be well to remark that the medical men in the legislature were not united in their attitude regarding milk legislation.

The most important positive act of constructive legislation that passed this year was that by which any person wishing to be registered in Massachusetts as a physician must henceforth be a graduate of a properly incorporated medical school. Massachusetts was the third state this year to pass such a law, Tennessee and Washington being the other two, and Massachusetts was the next to the last state in the Union to make this requirement. Colorado is now the only state left without such a law. The success of this measure was due to the indefatigable work of Dr. Bowers, the secretary of the Board of Registration, while in the Legislature, Dr. Nickerson of Harwich and Dr. Frothingham of Lynn did hard fighting on the floor of the house and much personal work in both branches of the Legislature. The profession at large had also much to do with the final result, for they let their opinion be known in no uncertain manner to their senators and representatives; especially was this so in New Bedford, Fall River, Cambridge, Boston and Lawrence.

The work in many respects has been discouraging, because in spite of the good work of Dr. Hart, the House Chairman, and of the energetic work of Dr. Nickerson, who has won a strong position in the house during this, his first term, the Public Health Committee has not had the influence it should. It was rarely that more than five men attended the hearings: in fact, several men practically never were seen, and the chairman had to poll the committee in the lobbies and anterooms, rather than in the committee room. It is to be wondered at that the few active members were able to do as well as they did, and they deserve much credit for all that they accomplished.

The thanks of the Committee are due to the forty members of the Auxiliary Committee, many of whom worked hard to make their senators and representatives realize medical opinion, and often were able to direct the expression of general public opinion in favor of sound public health measures.

Respectfully submitted,

ARTHUR K. STONE, *Secretary.*

Dr. M. J. Rosenau read this report and it was accepted:

ANNUAL REPORT OF THE COMMITTEE ON PUBLIC HEALTH.

The Committee on Public Health presents the following report:

Owing to radical changes in the health administration of the state, the Committee has considered it wise to follow a waiting, rather than an aggressive policy, throughout the year, feeling that by doing so, a more helpful campaign might be made later when the plans of the State Commissioner of Health were better understood and intelligent coöperation more easily established. It was also thought better not to push health legislation this year, because of a similar decision by the Commissioner of Health and the Public Health Council.

It is the unanimous opinion of the Committee on Public Health that perhaps the most pressing need is for competent health officers throughout the Commonwealth. There should be a qualified sanitarian in each city, town and rural district, to guide and instruct the people in the art of hygienic living and to administer the health laws. The Committee has, therefore, in all its work throughout the year, endeavored to emphasize this point and to stimulate action along these lines. Several full-time and specially trained health officers have been appointed, notably at Waltham and Watertown.

Letters have been sent to the secretary of each county district medical society asking that talks be given to the public on various matters relating to public health, such as the prophylaxis of typhoid fever and other communicable diseases, the discussion of infant mortality. Also, urging the consideration of each district medical society regarding the importance of the prevention and early diagnosis of cancer, and of tuberculosis. Many of the societies are considering these subjects.

The work of the Committee on Public Health Education Among Women, of the American Medical Association, was referred by that Association to each state as part of the work of the state medical society. The Committee on Public Health has therefore ap-

pointed Dr. Abbie Noyes Little of Newburyport to conduct a campaign along these lines. Dr. Little cooperated with the Department of Public Health of the Woman's Municipal League of Boston in arranging a course of five health lectures during February and March. These were held at the League rooms and were successful.

At the request of the Committee on Philanthropies of the Massachusetts Federation of Churches, members of the Public Health Committee of the Massachusetts Medical Society met with them to see if some method of coöperation might be devised whereby the doctors and ministers throughout the state might coöperate for the benefit of their local communities.

It was voted: That it is the sense of the meeting:

1. That more intimate and practical coöperation should be established and maintained between the Massachusetts Federation of Churches and the Massachusetts Medical Society, for the purpose of improving the health of this commonwealth.
2. That the churches of every community (through their local federation where one exists) should consult and coöperate with its physicians in matters of public health.
3. That the fundamental need is that of a competent health officer in every city, township or group of towns.
4. That whatever specific local needs in the line of health are discovered, should be taken up, both educationally and practically, by coöperation of the churches and the physicians.

Following the meeting, addresses by a member of the Committee have been made at three Social Institutes arranged by the Federation of Churches. One was at Springfield, one at Littleton and one at Middleboro. In all three the emphasis of the talk was upon the need of especially trained, full-time health officers in all cities and towns throughout the commonwealth. It is expected that this method will reach many people outside of the medical profession, rousing interest in various problems having for their object the improvement of the sanitary and social conditions of the people.

The Chairman of the Committee was a delegate to the Conference of the American Medical Association on Public Health and Instruction (including medical legislation) at Chicago, Feb. 15 and 16. Also the Chairman made an address on "Courses and Degrees in Public Health" at this Conference, the proceedings of which have been published in full in the *Journal of the American Medical Association* and are not detailed herewith.

The Committee regrets the resignation of its valued member, Dr. Mark W. Richardson. Having been Chairman since the beginning of its work, he was particularly fitted to meet the various questions arising from time to time.

Respectfully submitted,

M. J. ROSENAU, *Chairman.*

Dr. Lincoln Davis reported for the Committee on Hospital Efficiency as follows:

At the Annual Meeting of the Council in 1914, the President was empowered to appoint a Committee on Hospital Efficiency, to consist of five members with instructions as follows:

1. To make a report at the annual meeting of the Council in 1915, as to the present state of medical and surgical efficiency of the hospitals of Massachusetts, as far as can be determined from the annual reports of these institutions.
2. To obtain from the superintendent of each institution, a statement as to which individual or departments are held responsible for a high standard of results in the medical and surgical treatment of their cases.
3. To obtain from each individual or department an answer to this question: "Will you adopt some simple form of morbidity report for in-patients, if the majority of hospitals of the state agree on a uniform plan?"

Your Committee has endeavored to comply with these instructions, and begs leave to submit the following report:

In answer to the first instruction, we find that the annual reports of the Massachusetts hospitals, so far as we have been able to get at them, are with very few exceptions made upon the same general plan; a plan which conveys little definite information for the determination of the value or efficiency of the work done by the medical or surgical staffs. There is no uniform system of classification, so that comparisons are quite impossible, and an accurate knowledge of what is meant to be included under the different headings, is exceedingly difficult to obtain. Some idea of the relative frequency of different diseases and injuries in a given community, and the immediate hospital mortality, are all that can be gained from the best of the hospital reports, as at present prepared.

In answer to the second instruction, out of 146 letters of inquiry, 52 hospitals were not heard from at all; 17 did not specifically answer the question asked. Of those who replied, four said the responsibility rests with the superintendent; four, that it rests with a committee of the trustees; 14, with an executive committee; 17, with one member of the staff or chief of staff; and nine, with the medical and surgical staff. In nine cases it was said that each individual was responsible for his own cases, and in 20, that the responsibility was not fixed.

The character of the replies would lead your Committee to believe that in most instances the responsibility is purely nominal.

In answer to the third instruction, your Committee finds a very surprising and gratifying unanimity of sentiment in favor of a uniform system of morbidity reports, each institution, very properly, of course, reserving its final decision until some definite plan is submitted, but practically all expressing sympathy with the idea, and a willingness to coöperate in any plan that is practical and not too expensive or burdensome.

Having thus complied, as far as possible, with the instructions of the Council, your Committee would venture to suggest that in its opinion there are three important ways whereby the medical and surgical efficiency of the hospitals of the state may be increased.

First, by definitely fixing the responsibility for the results of hospital treatment.

Of the different plans for securing a direct personal responsibility, the Committee believes the most efficient and the best, is the establishment of a continuous service or services, with a chief or chiefs, who shall render an account of service to the board of trustees to be published as a part of the annual report.

Second, by the establishment of a follow-up system, whereby the end results of treatment may be learned and reviewed, and if practicable, published.

Third, by the adoption of a uniform classification of diseases, and form of morbidity report.

We beg leave, therefore, to submit the following recommendation:

That the appointment of a Committee be authorized by the Council, to consist of representatives of the medical and surgical and administrative departments of the hospitals of the state, to further consider the means of increasing their medical and surgical efficiency along the lines suggested, and to prepare a plan of uniform hospital report, which, upon the approval of the Council, should be recommended to the favorable consideration of the hospitals of Massachusetts.

Respectfully submitted,

HOMER GAGE, *Chairman.*
P. P. JOHNSON
P. E. TRUESDALE
J. T. BOTTOMLEY
LINCOLN DAVIS, *Secretary.*

Voted, To accept the report and adopt its recommendation.

The president reappointed the same committee to carry out the recommendation of the report.

Dr. W. P. Bowers presented the subjoined motion, explaining that it was not the purpose to interfere with any committee of the Society, but on the contrary, to assist by providing an executive officer, the rights of the Society being, in his opinion, safeguarded:

Moved, That a committee consisting of the President, the Secretary, the Treasurer, the Chairman of the Committee on Membership and Finance, and the Chairman of the Committee on Public Health, be and hereby is elected with full power to confer with Mr. Henry Copley Greene, Dr. Arthur B. Emmons, 2d, Mr. Carl Carstens, and Miss Mary Beard, or any of them, and when deemed advisable may accept and disburse such funds as may be donated to the Society by or through the above mentioned Greene, Emmons, Carstens, and Beard, or any other persons, for the purpose of hiring an agent who shall, under the direction of this Committee of the Massachusetts Medical Society, assist in the dissemination of information, and in the carrying on of any function of the Society, in public health work, legislation, social service, or similar departments of effort.

Dr. Dolan was opposed to the motion, for he thought it would not bring about a proper solution of the midwife question. On being put to a vote the motion was carried.

Dr. Gay spoke of the valuable services rendered by Fellows of the Society in the defence of malpractice suits against members and introduced the following motion which was passed unanimously:

Moved, That the thanks of the Council of the Massachusetts Medical Society be, and they hereby are, extended to the following Fellows for their unselfish and efficient services as experts in defending suits for malpractice in the courts against Fellows of this Society: Drs. G. B. Shattuck, F. S. Newell, F. J. Cotton, J. B. Blake, G. W. W. Brewster, H. A. Lothrop, A. W. George, C. J. White, W. J. Dodd, F. S. Burns, of Boston, Drs. E. H. Stevens of Cambridge, C. E. Prior of Malden, and H. W. VanAllen of Springfield.

REPORT OF THE LIBRARIAN.

The Librarian reports that during the past year he has attended to the various duties of his office, sending the publications to Fellows who have paid for preceding years and reporting payments to the publishers of the BOSTON MEDICAL AND SURGICAL JOURNAL so that the JOURNAL may be promptly received.

A directory of the Officers and Fellows was compiled and issued as a supplement to the JOURNAL. It is hoped that the Fellows *will report at once any change of address* in order that the Directory for 1916 will be as accurate as possible.

Respectfully submitted.

EDWIN H. BRIGHAM, *Librarian.*

Voted, to accept the report.

Dr. C. M. Green introduced this amendment to the by-laws on behalf of the Committee on Membership and Finance and action on it was deferred until the October meeting of the Council:

The Committee on Membership and Finance respectfully recommends the following change in the by-laws, to wit, in Chapter VII, Section 3, that the word "June" in the last line of the fourth paragraph be changed to "March," so that the clause shall read:

"This dividend shall be apportioned among the district societies according to the number of annual assessments which shall have been paid to the district treasurers previous to March first."

Dr. C. J. Allen referred to the activity of the *Journal of the Association of Retail Druggists* in advancing a propaganda restricting the dispensing of all drugs and remedies to pharmacists, and offered the following motion:

Moved, That the chair appoint a committee of three who shall investigate the advisability of employing legal aid in safeguarding the interests of the Society in matters that may come before the Massachusetts Legislature. They shall ascertain the approximate cost of such aid and report with recommendations to the next meeting of the Council.

On being put to a vote the motion was carried by a vote of 63 in favor and 23 opposed. Thereupon the president appointed this committee: C. J. Allen, G. W. Gay, C. M. Green.

The Nominating Committee brought in this list of officers and on proceeding to ballot they were declared elected:

President, Charles F. Withington, Boston; Vice-President, Edmond F. Cody, New Bedford; Secretary, Walter L. Burrage, Boston; Treasurer, Edward M. Buckingham, Boston; Librarian, Edwin H. Brigham, Brookline; Orator, David L. Edsall, Boston.

On nomination by the president the following Standing Committees were appointed for the ensuing year:

Of Arrangements.—J. D. Barney, E. L. Young, Jr., J. H. Young, J. L. Huntington, R. H. Miller, C. H. Lawrence, Jr.

On Publications and Scientific Papers.—G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.

On Membership and Finance.—C. M. Green, A. Coolidge, Jr., Samuel Crowell, F. W. Taylor, Alfred Worcester.

On Ethics and Discipline.—J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hough, S. B. Woodward.

On Medical Education and Medical Diplomas.—H. C. Ernst, C. F. Painter, H. W. Newhall, J. F. Burnham, C. Frothingham, Jr.

On State and National Legislation.—C. F. Withington, F. G. Wheatley, G. W. Gay, A. K. Stone, W. P. Bowers.

On Public Health.—M. J. Rosenau, W. I. Clark, Annie L. Hamilton, E. H. Bigelow, R. I. Lee.

Adjourned at 1.26 p.m.

WALTER L. BURRAGE, *Secretary.*

Miscellany.

REGISTRATION OF PHYSICIANS IN MASSACHUSETTS.

THE following is the complete text of the act recently passed by the Massachusetts General Court relative to the qualifications for registration of physicians in this state.

"Section 1. Section three of chapter seventy-six of the Revised Laws, as amended by chapter three hundred and forty-six of the acts of the year nineteen hundred and thirteen, is hereby further amended by striking out all after the word 'applicants,' in the third line, down to and including the word 'secretary,' in the eleventh line, and inserting in place thereof the words:—Applicants for registration under this act, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, and of good moral character, and that they have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine, shall, upon the payment of a fee of twenty dollars, be examined, and if found qualified by four or more members, shall be registered as qualified physicians, and shall be entitled to certificates in testimony thereof signed by the chairman and secretary,—so as to read as follows:—*Section 3.* Applications for registration shall be made upon blanks to be furnished by the board, and shall be signed and sworn to by the applicants. Applicants for registration under this act, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, and of good moral character, and that they have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine, shall, upon the payment of a fee of twenty dollars, be examined, and if found qualified by four or more members, shall be registered as qualified physicians, and shall be entitled to certificates in testimony thereof signed by the chairman and secretary. An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled within one year after such refusal to a re-examination at a meeting of the board called for the examination of applicants, without the payment of an additional fee; but two such re-examinations shall exhaust his privilege under his original application. Said board, after hearing, may by unanimous vote revoke any certificate issued by it and cancel the registration of any physician who has been convicted of a felony or of any crime in the practice of his profession. The board may subsequently, but not earlier than one year thereafter, by a unanimous vote, reissue any certificate formerly issued by it or issue a new certificate, and register anew any physician whose certificate was revoked and whose registration was cancelled by the board. All fees received by the board shall, once in each month, be paid by its secretary into the treasury of the Commonwealth.

"Section 2. This act shall take effect upon its passage. (Approved May 28, 1915.)

In conjunction with the above it is noted in the recent bulletin (No. 10) of the Massachusetts State Board of Insanity that that board has taken up with the board of registration in medicine the question of employing unregistered internes and physicians, there having been some query as to the legality of this procedure.

'The Board is able to report that all staff physicians must take an examination and register in July, or else they will be liable to prosecution for practicing without a license.

As to internes, we quote from a letter from the Board of Registration in Medicine under date of June 2, as follows:—

"Internes who are to all intents and purposes students would not be required to become registered, but if a man receives a salary which is paid because of his medical knowledge, and does exercise his medical knowledge, then he is practicing medicine as defined in the law and must be registered.

"This Board is not inclined to push this matter up to the point of splitting hairs, and is only dealing with the question when the evidence is clear.

"We are anxious to secure a conference of the hospital authorities and have the law amended so that there will be no harm done to any honorable person and that every person concerned can know exactly what is meant under the law."

With this end in view the Board of Insanity has asked the secretary of the Board of Registration in Medicine to meet in conference with the medical men of the state institutions under the State Board and discuss the whole matter.'

Correspondence

PARIS LETTER.

"SPRING AS USUAL," — NOTWITHSTANDING THE WAR!

(From Our Special Correspondent.)

PARIS, May 31, 1915.

Mr. Editor: After a winter unaccustomedly protracted even for this part of the world, spring has at last suddenly unfolded its beauty to our eyes in a single burst. This resembles a little what is said to take place in the far North, where the growth is held back so late, and has to accomplish so much in such a very short period, that on a perfectly still night you can *hear* the buds opening and the new leaves unfolding their blades. The Scandinavian God, then, who could see at a hundred leagues, and hear the grass growing in the fields and the wool on the sheep's back, was not so entirely a creature of fancy as might be imagined. We under this degree of latitude have to endure much in the way of winter gloom, the chilly dampness; but I must confess that I am sometimes almost prepared to admit that it is worth

while going through all of this, to be finally rewarded by such a sight as the beauty of Paris in early May. In fact, from the look of the Avenue in the morning hours, with its luxuriant vegetation and new wood pavement, the men leisurely cutting the lawns, the thousands of prettily-dressed children with their nurses, and the cavaliers and ladies passing to and from the Bois, no one would dream we were in the midst of the most deadly war ever waged; the only strange note in this Spring-harmony is the deep musical whirr of the aeroplane sentinel as he patrols back and forth high up above our heads with his vast wings glistening in the sun.

It would, I think, be difficult to find in any large city such lovely prospects, in their fresh green of spring, as the Parc Monceau, the reach from the Luxembourg to the Observatoire, the Avenue du Bois, and the island in the big lake in the Bois de Boulogne; these stretches were laid out by a consummate artist, the variety and coloration of the trees on the island being in particular something quite extraordinary. I once knew some people who lived high up above the horse-chestnuts on the Avenue de l'Observatoire; I never saw a more charming sight than to look down in spring on those undulating treetops covered with red or white conical inflorescences and watch them gently dip and rise before the puffs of wind, exactly like the waves of the sea. I wonder whether any of you have had the good fortune to notice the wondrous spectacle that surrounds at this season the main *pièce d'eau* just back of the Luxembourg palace, where tier upon tier of lilacs, hawthorn and horse-chestnuts, in both their varieties of pink and white, are massed in a vast hemicircle? There are also certain drives in the Bois where after any violent shower the pink or white blossoms of the acacia or horse-chestnut are beaten down in such quantities as to form for a day or so a smooth, even, colored carpet beneath the trees.

Just outside of my bedroom window stands a solitary acacia in the neighboring garden, a tree that has come sadly down in the world, one of the few straggling survivors of the woods that once covered this western slope of the hill now crowned by the Arc de Triomphe. Promptly at the first suspicion of dawn, earliest of all his congeners, a blackbird perches himself on the topmost bough, and during a brief period pours forth amid the uncanny stillness his exquisitely liquid notes. The blackbird is in this part of the world the uncontested leader among the feathered songsters, and whether at the break of day, or after sunset, his deliciously pure modulations are a never-ending delight. I should not venture, even in my wildest flights, to attempt to reproduce either in writing or in music his marvellous cadences, interspersed at intervals with derisive shrieks; others have done so, however, and I beg to submit to all lovers of this dainty bird the latest effort in this direction. A Norse writer thus describes for his campatriots the song of the blackbird:

Huitja,
huitja, huitja, tret, tret, tret tsivil,
tsivil, tsivil, ha, ha, ha!

Let us pass on without comment. The man meant well, no doubt, and possibly that is the way the notes sounded to him. If certain people are color-blind, I see no reason why others should not be tone-deaf. Or perhaps, now that horses and dogs talk and do arithmetic, that particular bird was trying to sing in the vernacular of Norway. Certainly no blackbird I ever heard made such sounds as that; and what makes me think I am right is that there did once live a writer who had an ear, Aristophanes, who in his "Birds" has reproduced sounds that come uncommonly near to the notes of the blackbird:

tiō, tiō, tiō, tiotingx; to to to to tingx;
ioū, ioū, ioū; torotíx, torotíx;
triotó, triotó, totobríx; iō, iō,
itō, itō, kinnabau, kinnabau, lililix!

Aristophanes' protagonist was, it is true, the hoopoe (epops), a bird that is not a songster, but simply makes a noise similar to a whoop, whence its name. The hoopoe was introduced into the play only on account of its brilliant plumage, and of the comical scenic effects that could be drawn from its abnormally prominent and erectile crest. But among the chorus figure both the blackbird (kopsichos) and the nightingale (aedon), common birds in Greece, and with which the author must have been thoroughly familiar; so that it appears unquestionable that the above sound-mimicry was an attempt on his part to reproduce the song of these two latter birds which has much similarity. All of this question of the reduction to letters of abstract tones is very personal and based on acuteness of hearing and on musical training; but certainly, so far as *I* am concerned, Aristophanes' effort would pass very closely for the blackbird, that *lix* and *tingx* reproducing rather neatly the piercing final notes of so many of its periods. But at any rate, pray compare his imitation with our Norse friend's effort!

A French naturalist speaks of the blackbird "whistling an absolutely invariable cadence in a minor key, incessantly beautified by fresh variations,—this bird being an incorrigible plagiarist;" and he refers to a case where a blackbird and a nightingale had built nests in the same tree, the outcome being that the former learned to copy the latter so accurately that no one could distinguish between the two. This is another instance of the importance of the personal equation in the estimation of differences in sound;—thus, it would never have occurred to me to say that a blackbird "whistles," or that it always sings one and the same cadence in a minor key. And this reminds me of the tale of the travelers in Turkey who were asked to note down on paper as nearly as they could how the word *bakshеesh* sounded to their ears, and of the curious results that ensued! When you come to think of the matter, the power to distinguish between sounds is in reality a question of training. If we were all to set to work to learn the blackbird's tongue, we should ultimately reduce it to symbols about which we should all agree; it is only because one of us occasionally takes a wild shot at the subject out of passing curiosity that the results are so divergent. Consider what happens with the telephone. If someone rings, and says in French to my French servant that M. Martin or M. Dupont wishes to see me, there is not the slightest trouble; but if an Englishman telephones that Mr. Jackson or Mr. Harrison is at the apparatus, he has often great difficulty in getting the name correctly. No doubt we personally should have equal trouble in catching even approximately a Russian or Spanish name.

The region of Paris simply swarms with blackbirds. Every old court that contains a tree or two, or merely a wall covered with deep, dark ivy, will harbor at least one pair; and when the young are hatched the parents can be seen all day long scurrying over the sod and hauling out and slaughtering the inoffensive earthworms that seem to constitute their food of predilection. In the Bois, at the time when the young are large enough to leave their nests and be taught how to make their way in the world, you will sometimes find in secluded parts flocks of twenty or thirty together,—rather a strange sight, with such very shy creatures as these. Paris is surrounded on every side with beautiful, well-watered forests, so why these timid birds, with such limitless possibilities at their choice, should elect to live in shut-in courts in town, is a conundrum,—particularly as their favorite earthworms are not so very plentiful in a paved city. This custom hardly seems to harmonize with what Chaucer says about a bird's disdain for cages and luxury:

"Yet hath this bird, by twenty thousand fold,
Lever in a forest, that is rude and cold,
Gon ete wormes and swich wreechednesse."

I have often wondered how it is that we have no nightingales in this part of the world, since they are on all sides of us, so to speak. I once spent a spring at Bellagio, on Lake Como, and the noise they made there at night was enough to preclude sleep. Andalusia, in southern Spain, is notorious for its nightingales. And all of that charming group of men that have written at such length about country life in England, Gilbert White, Charles Cornish, and Richard Jefferies, speak of the nightingales in spring in terms that fill one with consuming envy. In some districts near London they are to be found in such abundance that they have given their name to the place; thus, in a side-glen of the Surrey hills, running down to the deep stream of the Wey, south of the Thames, there is a Nightingale Valley, while north of the same river, in the Brent Valley, not far from Ealing (in reality a part of Greater London), there is a preserved wood of twenty acres that is famous for these birds. Here again we find the facts in opposition to Chaucer's lines,—think of birds that could nest on the shores of Lake Como or in Grenada among the glades of the Alhambra, coming to rear their young in the dingy suburbs of London!

It has now been so long since I really had a chance to listen to the nightingale's song that I should not attempt to say what it is like; nor does the reproduction of its notes seem to be an easy task, from all I hear. No less a person than Verdi had a try, it appears, but abandoned the attempt; yet no one would venture to question the degree of cultivation of his sense of sound. The authority on this matter is naturally a Herr Professor, Beckstein by name, though even he admits that he has succeeded only very approximately. The following is (as nearly as I can translate his remarks, some of his terms being unfamiliar to me) what he has to say on the subject: "The nightingale's song is composed of twenty-four cadences clearly distinguished by their first and last notes, and comprises about 185 trills and flourishes; it is a succession of melodies interspersed with organ-points and beautified by coloration." That is the best I can do with it,—understand if you can; but it all sounds very German.

Our ancestors did not possess the words "Spring" and "Autumn," but used in their stead "Lenten" and "Haerfest;" thus, there is a mediaeval poem which runs:

> "Lenten ys come with love to toune,
> With blosmen and with briddes roune."

All of these delightful old Anglo-Saxon words have now been practically discarded, having gone down before the progress of the Latin element of our language. Harvest-time has now a limited meaning, as also Lent; while blossom has become flower, and as for "to roun," how many of my readers are there who have any idea what it means! Lencten is from the verb meaning to lengthen; the word therefore indicates the time of year when the days grow longer. But although words may differ, the season itself remains the same, and at each renewal thereof we only find ourselves more and more deeply conscious of its wondrous beauty, its healthy joys and endless promises. I think, however, that at no time has the awful horror of the present war affected me so strongly as at present. The idea that, at this season of the songs of birds, of the luxuriance of blossoms, and of the renewal of life, the men who ought to be on the farms hard at work at the labors of peace, tending the lambs, planting their gardens, and tilling the fields, are crouchng by the million in the endless trenches that stretch from one end of Europe to the other, trying to exterminate each other by every device that the science and ingenuity of man has been able to create,—is one that is simply appalling. If in the hereafter there be a tribunal for the apportioning of reward and punishment, the people that precipitated this, the greatest calamity of all history, have indeed a fearful reckoning in prospect.

"S."

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JUNE 19, 1915.

CONTRIBUTIONS.

Dr. L. O. Tarleton, First Lieut.,U.S.A., Manila, P.I.	$ 5.00
Norwich Medical Association, Norwich, Conn.	25.00
Westmoreland County Medical Soc., Mount Pleasant, Pa.	25.00
Elmira Academy of Medicine, Elmira, N.Y.	50.00
Dr. Angus McLean, Detroit, Mich.	30.00
Receipts for the week ending June 19	$ 135.00
Previously reported receipts	7312.00
Total receipts	$7447.00

Previously reported disbursements:

1625 standard boxes of food @ $2.20	$3575.00
1274 standard boxes of food @ $2.30	2930.20
353 standard boxes of food @ $2.28	804.84
Total disbursements	$7310.04
Balance	$ 136.96

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburgh, Pa.

APPOINTMENTS.

BOSTON CITY HOSPITAL. In the pathological department *Dr. George S. Graham* has been appointed second assistant pathologist, and *Dr. Edgar M. Medlar*, research assistant in pathology.

RECENT DEATHS.

DR. J. WALTER BEAN, who died on June 20 at West Medford, Mass., was born in Sutton, N. H., on June 7, 1855. After studying medicine with Dr. M. M. Russell of Concord, N. H., he received the degree of M.D. from the University of Vermont in 1882. After practising his profession for three years at Lyme, N. H., he pursued post-graduate studies in New York and in 1890 settled at West Medford. He was a member of the American Medical Association, of the New Hampshire State Medical Society and president of the Medford Medical Society. He is survived by his widow and by one son, also a physician.

DR. JAMES EDWIN CLEAVES, who died at his home in Medford, June 20, 1915, was born July 5, 1853, in Somerville. He was a graduate of the Harvard Medical School in the class of 1879 and had been a councillor of the Massachusetts Medical Society for several years. Formerly Dr. Cleaves was a member of the Medford board of health. He is survived by his widow and by one son, also a physician.

DR. GUSTAVUS F. WALKER, who died in Boston on June 1, was born at Hodgdon, Maine, in 1843. At the outbreak of the Civil War he enlisted in the Twentieth Maine Regiment, with which he served throughout the war. Subsequently he studied medicine at the Boston University and at the Vermont Medical College, and since 1888 had practised his profession in Boston. He was a member of the Boston District Eclectic Medical Society. He is survived by his widow, one daughter and one son, the latter being also a physician.

DR. FANEUIL DUNKIN WEISS, who died on June 24 at Gedney Farms near White Plains, N. Y., was born at Watertown, Mass., the son of a physician, in 1843. He had resided for many years in New York City and was dean of the New York College of Dentistry.